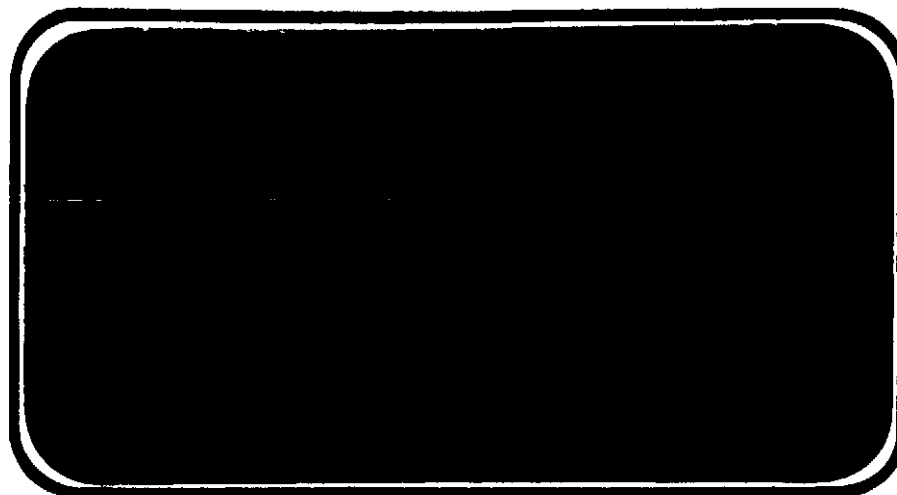




NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

CR 134097



(NASA-CR-134097) RESULTS OF  
INVESTIGATIONS (OA20C) ON AN 0.015-SCALE  
CONFIGURATION 140A/B SPACE SHUTTLE VEHICLE  
ORBITER MODEL (49-0) IN THE (Chrysler  
Corp.) -188 p HC \$12.50  
2/3  
CSC 22B  
G3/31  
Unclas  
41573  
N74-27385

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services



April, 1974

DMS-DR-2147  
NASA CR-134,097

RESULTS OF INVESTIGATIONS (OA20C)  
ON AN 0.015-SCALE CONFIGURATION 140A/B  
SPACE SHUTTLE VEHICLE ORBITER MODEL (49-0)  
IN THE NASA/LANGLEY RESEARCH CENTER  
UNITARY PLAN WIND TUNNEL

By

M. E. Nichols, Rockwell International Space Division

Prepared under NASA Contract Number NAS9-13247

By

Data Management Services  
Chrysler Corporation Space Division  
New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: LaRC UPWT 1057  
NASA Series No: OA20C  
Model No: 49-0  
Test Dates: 5 November 1973 - 8 November 1973

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By M. E. Nichols, Rockwell International Space Division

ABSTRACT

This report documents data obtained from the continuation of wind tunnel test series OA20, using an 0.015-scale Configuration 140A/B SSV Orbiter model in the NASA/Langley Research Center Unitary Plan Wind Tunnel. This test was conducted from November 5 to November 8, 1973, with runs at Mach numbers of 2.5, 3.9, and 4.6, at Reynolds numbers from  $1.25 \times 10^6$ /ft to  $5.00 \times 10^6$ /ft. Only one model configuration, the complete 140A/B Orbiter vehicle, was tested. Various control-surface settings were run through an angle-of-attack range from -4 to +42 degrees at 0 degree angle-of-yaw.

The purpose of this portion of the test was to define those parts of the longitudinal stability and control characteristics for the updated SSV configuration which were not obtained in OA20A due to a facility breakdown. Test OA20B is concerned with sting-effects and has not been run as yet.

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## PLOTTED COEFFICIENTS SCHEDULE:

- (A) CL, CD, CA, CN, CLM, L/D, XCP/L versus ALPHA  
CLM versus CN, CD versus CL
- (B) CL, CD, CA, CN, CLM, L/D, XCP/L versus ALPHA  
CLM versus CN, CD versus CL  
DCL, DCD, DCA, DCN, DCLM versus ALPHA



NOMENCLATURE  
General

<u>Symbol</u>	<u>SADSAC Symbol</u>	<u>Definition</u>
a		speed of sound; m/sec, ft/sec
$C_p$	CP	pressure coefficient; $(P_i - P_\infty)/q$
M	MACH	Mach number; $V/a$
P		pressure; $N/m^2$ , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$ , $N/m^2$ , psf
Re/ft	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
$\alpha$	ALPHA	angle of attack, degrees
$\beta$	BETA	angle of sideslip, degrees
$\psi$	PSI	angle of yaw, degrees
$\phi$	PHI	angle of roll, degrees
$\rho$		mass density; $kg/m^3$ , slugs/ft <sup>3</sup>

Reference & C.G. Definitions

$A_B$		base area; $m^2$ , $ft^2$
$b_w$	BREF	wing span or reference span; m, ft
$\bar{c}_w$		reference length for $C_m$ , MAC; m, ft
$l_B$	LREF	reference body length; m, ft
$S_w$	SREF	wing area or reference area; $m^2$ , $ft^2$
MRC		Moment Reference Center

$C_n$	CLN	yawing-moment coefficient; yawing moment/ $qS_w b_w$
$C_l$	CBL	rolling-moment coefficient; rolling moment/ $qS_w b_w$
L/D	L/D	lift-to-drag ratio; $C_L/C_D$
$L/D_F$	$L/D_F$	lift to forebody drag ratio; $C_L/C_{D_F}$
$A_{B_F}$		base area of fuselage(excluding cavity), $ft^2$
$A_{B_M}$		base area of OMS pods, $ft^2$
$C_{A_{SC}}$	CASC	sting-cavity axial-force coefficient
$C_{P_B}$	CPB	base pressure coefficient
$C_{P_{SC}}$	CPSC	sting-cavity pressure coefficient
$X_{cp}/l_B$	XCP/L	normal force center-of-pressure
$P_T$	PT	freestream total pressure, PSF
$P_\infty$	P	freestream static pressure, PSF
$T_T$	TT	freestream total temperature, °R
$\delta_E$	ELEVON	elevon deflection, degrees
$\delta_A$	AILRON	aileron deflection, degrees
$\delta_{BF}$	BDFLAP	bodyflap deflection, degrees
$\delta_{SB}$	SPDBRK	speedbrake deflection, degrees
$\delta_R$	RUDDER	rudder deflection, degrees

$X_{CG}$	XMRP	Moment Reference Center on X axis, distance from fuselage nose, in
$Y_{CG}$	YMRP	Moment Reference Center on Y axis, in
$Z_{CG}$	ZMRP	Moment Reference Center on Z axis, distance from FRL, in

#### Body-Axis System

$C_N$	CN	normal-force coefficient; normal force/ $qS_w$
$C_A$	CA	axial-force coefficient, axial force/ $qS_w$
$C_Y$	CY	side-force coefficient; side force/ $qS_w$
$C_{A_B}$	CAB	base-force coefficient, base force/ $qS_w$
$C_{A_F}$	CAF	forebody axial force coefficient; $C_A - C_{A_B}$
$C_m$	CLM	pitching-moment coefficient; pitching moment/ $qS_w \bar{c}_w$
$C_n$	CYN	yawing-moment coefficient; yawing moment/ $qS_w b_w$
$C_l$	CBL	rolling-moment coefficient, rolling moment/ $qS_w b_w$

#### Stability-Axis System

$C_L$	CL	lift coefficient, lift/ $qS_w$
$C_D$	CD	drag coefficient, drag/ $qS_w$
$C_{D_B}$	CDB	base-drag coefficient; base drag/ $qS_w$
$C_{D_F}$	CDF	forebody drag coefficient; $C_D - C_{D_B}$
$C_Y$	CY	side-force coefficient; side force/ $qS_w$
$C_m$	CLM	pitching-moment coefficient; pitching moment/ $qS_w \bar{c}_w$

## SUBSCRIPTS

B	base
l	local
o	static conditions.
T	total conditions
$\infty$	free stream
SC	sting-cavity

## CONFIGURATION INVESTIGATED

Throughout test OA20C the full 140A/B hybrid configuration Space Shuttle Vehicle Orbiter Model 49-0 was used. No configuration buildup was possible in the short test period.

Model 49-0 dimensional data are given for the 140A/B configuration components in another section of this report.

The tested configuration included the following components:

<u>Component</u>	<u>Definition</u>
B <sub>26</sub>	Basic 140A/B configuration fuselage
C <sub>9</sub>	Basic 140A/B configuration canopy
F <sub>7</sub>	Basic 140A/B configuration bodyflap
M <sub>7</sub>	Basic 140A/B configuration OMS/RCS pods
N <sub>28</sub>	Basic 140A/B configuration OMS engine nozzle
W <sub>116</sub>	Basic 140A/B configuration wing
E <sub>26</sub>	Basic 140A/B configuration elevons for W <sub>116</sub>
V <sub>8</sub>	Basic 140A/B configuration vertical tail
R <sub>5</sub>	Basic 140A/B configuration rudder for V <sub>8</sub>

## TEST FACILITY DESCRIPTION

The Langley Research Center Unitary Plan Wind Tunnel is an air-medium continuous-flow facility, consisting of two test sections. Asymmetrical sliding-block type throats control Mach number, and models can be supported from stings mounted to the side-wall strut-systems. Each test section is 4 feet by 4 feet. Section Number 1 operates at  $M = 1.47$  to  $M = 2.86$ , and Section Number 2, used for this test, operates at  $M = 2.29$  to  $M = 4.63$ .

Reynolds numbers and tunnel pressures are variable, with limitations prescribed by tunnel capabilities and model load designs. Normal operating total temperature is  $150^{\circ}\text{F}$ .

## DATA REDUCTION

Force and moment data are reduced to coefficient form in both body and stability axis systems. Base and cavity pressure adjustments are applied.

### Base Pressure Coefficient

$$C_{P_B} = \frac{P_B - P_\infty}{q_\infty}, \text{ where } P_B = \frac{P_{B_F} A_{B_F} + P_{B_M} A_{B_M}}{A_{B_F} + A_{B_M}}$$

### Sting-Cavity Pressure Coefficient

$$C_{P_{SC}} = \frac{P_{SC} - P_\infty}{q_\infty}, \text{ where } P_{SC} \text{ is the sting-cavity pressure}$$

### Sting-Cavity Axial-Force Coefficient

$$C_{A_{SC}} = \frac{-(P_{SC} - P_B) A_{SC}}{q_\infty S_w}, \text{ where } A_{SC} \text{ is the sting-cavity area and } S_w \text{ is the wing reference area}$$

### Base Axial-Force Coefficient

$$C_{A_B} = - \frac{C_{P_B} (A_B) + C_{P_{SC}} (A_{SC})}{S_w}, \text{ where } A_B = A_{B_F} + A_{B_M}$$

### Forebody Axial-Force Coefficient

$$C_{A_F} = C_A - C_{A_B}$$

### Normal-Force Center-of-Pressure

$$X_{CP}/L = \frac{X_{CG}}{l_B} - \frac{C_m (\bar{c}_w)}{C_N (l_B)},$$

where  $X_{CG}$  is the longitudinal distance from the model nose to the Moment Reference Center,  $C_m$  is the pitching-moment coefficient,  $C_N$  is the

normal-force coefficient,  $l_B$  is the reference body length, and  $\bar{c}_w$  is the Mean Aerodynamic Chord of the wing.

Reference Dimensions and Constants

<u>Symbol</u>	<u>Definition</u>	<u>Value</u>
$A_B$	Base area ( $A_{B_F} + A_{B_M}$ )	$0.0615 \text{ ft}^2$
$A_{B_F}$	Fuselage base area (excluding cavity)	$0.0414 \text{ ft}^2$
$A_{B_M}$	Base area of OMS pods	$0.0201 \text{ ft}^2$
$A_{SC}$	Sting-cavity area	$0.03409 \text{ ft}^2$
$b_w$	Reference wing span	$1.171 \text{ ft}$
$\bar{c}_w$	Reference MAC	$0.5935 \text{ ft}$
$l_B$	Reference body length	$1.616 \text{ ft}$
$S_w$	Reference wing area	$0.60525 \text{ ft}^2$
$X_{CG}$	Longitudinal length, nose to Moment Reference Center	$12.774 \text{ in}$
$Y_{CG}$	Lateral length, plane of symmetry to Moment Reference Center	$0.000 \text{ in}$
$Z_{CG}$	Vertical length, FRP to Moment Reference Center	$-0.375 \text{ in}$



TABLE I.

[illegible]

TABLE II.

[illegible]

TABLE III. - MODEL DIMENSIONAL DATA

BODY - B26

CONFIGURATION 140 A/B ORBITER FUSELAGE  
(SAME AS B24 EXCEPT UNDERSIDE OF FUSELAGE FAIRED TO ACCEPT W116)  
DRAWING NO. VL70-000193, VL70-000140A AND SS-A00147

SCALE FACTOR =	.01500		
DIMENSION		FULL SCALE	MODEL SCALE
LENGTH (BODY FWD STA X0=235)		1293.3000 IN.	19.40000 IN.
MAXIMUM WIDTH (AT X0=1520)		262.0000 IN.	3.93000 IN.
MAXIMUM DEPTH (AT X0=1464)		250.0000 IN.	3.75000 IN.
FINESS RATIO		.2636	.26357
AREA			
MAXIMUM CROSS-SECTIONAL		340.8846 SQ.FT.	.07670 SQ.FT.

CANOPY-C9

CONFIGURATION 140 A/B ORBITER FUSELAGE CANOPY  
DRAWING NUMBERS VL70-000140A, VL70-000143A, AND SS-A00147

SCALE FACTOR =	.01500		
DIMENSION		FULL SCALE	MODEL SCALE
LENGTH (X0 = 434.643 TO 670)		235.3570 IN.	3.53000 IN.
MAXIMUM WIDTH (X0 = 513.127)		152.4120 IN.	2.28600 IN.
MAXIMUM DEPTH (X0 = 485.0)		25.0000 IN.	.37500 IN.

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

BODY FLAP-F7

CONFIGURATION 140 A/B. BODY FLAP HAS VARIABLE CENTERLINE DEFLECTION  
OF +13.75 DEGREES AND -14.25 DEGREES FROM NULL POSITION. HINGE  
LINE LOCATED AT  $X_0 = 1528.3$   
DRAWING NUMBERS VL70-000140A AND VL70-000145

SCALE FACTOR =	.01500		
DIMENSION		FULL SCALE	MODEL SCALE
LENGTH ( $X_0=1520$ TO $X_0=1613$ )		93.0000 IN.	1.39500 IN.
MAXIMUM WIDTH		262.0000 IN.	3.93000 IN.
MAXIMUM DEPTH ( $X_0=1520$ )		23.0000 IN.	.34500 IN.
PLANFORM AREA		150.5250 SQ.FT.	.03390 SQ.FT.
BASE AREA		41.8472 SQ.FT.	.00941 SQ.FT.

OBS PODS-M7

CONFIGURATION 140 A/B ORBITER OBS PODS  
DRAWING NUMBERS VL70-000140A, VL70-000145, AND SS-A00147

SCALE FACTOR =	.01500		
DIMENSION		FULL SCALE	MODEL SCALE
LENGTH (OBS FWD. STA. $X_0 = 1233.0$ )		327.0000 IN.	4.90500 IN.
MAXIMUM WIDTH ( $X_0 = 1450.0$ )		94.5000 IN.	1.41800 IN.
MAXIMUM DEPTH ( $X_0 = 1493.0$ )		109.0000 IN.	1.63500 IN.

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

OHS NOZZLES-N28

CONFIGURATION 140 A/B ORBITER OHS NOZZLES  
DRAWING NUMBERS VL70-000140A AND SS-A00147

SCALE FACTOR = .01500  
DIMENSION

FULL SCALE

MODEL SCALE

GIMBAL POINT STATION

X

1518.0000 IN.

22.77000 IN.

Y

88.0000 IN.

1.32000 IN.

Z

492.0000 IN.

7.38000 IN.

NULL POSITION

PITCH

15.8170 DEG.

15.81700 DEG.

YAW (OUTBOARD)

12.2830 DEG.

12.28300 DEG.

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

## WING-V116

CONFIGURATION 140 A/B ORBITER WING. SAME AS V114 EXCEPT AIRFOIL  
THICKNESS. DIHEDRAL ANGLE IS ALONG TRAILING EDGE OF WING  
DRAWING NUMBERS VL70-000140B, VL70-000200, AND SS-A00148

SCALE FACTOR = .01500

DIMENSION	FULL SCALE	MODEL SCALE
TOTAL DATA		
PLANFORM AREA (THEORETICAL)	2690.0000 SQ.FT.	.60530 SQ.FT.
SPAN (THEORETICAL)	936.6816 IN.	14.05000 IN.
ASPECT RATIO	2.2650	2.26500
RATE OF TAPER	1.1770	1.17700
TAPER RATIO	.2000	.20000
DIHEDRAL ANGLE	3.5000 DEG.	3.50000 DEG.
INCIDENCE ANGLE	.5000 DEG.	.50000 DEG.
AERODYNAMIC TWIST	3.5000 DEG.	3.00000 DEG.
SWEEPBACK ANGLES		
LEADING EDGE	45.0000 DEG.	45.00000 DEG.
TRAILING EDGE	-10.0560 DEG.	-10.05600 DEG.
0.25 ELEMENT LINE	35.2090 DEG.	35.20900 DEG.
CHORDS		
ROOT (THEORETICAL) B.P. 0.0	689.2429 IN.	10.33900 IN.
TIP (THEORETICAL) B.P.	137.8486 IN.	2.06800 IN.
M.A.C.	474.8117 IN.	7.22200 IN.
FUS. STATION OF 0.25 M.A.C.	1126.7210 IN.	17.05100 IN.
W.P. OF 0.25 M.A.C.	291.0000 IN.	4.36500 IN.
B.L. OF 0.25 M.A.C.	187.3349 IN.	2.81000 IN.
EXPOSED DATA		
AREA (THEORETICAL)	1812.2205 SQ.FT.	.40800 SQ.FT.
SPAN (THEORETICAL) IN. B.P. 108	736.6816 IN.	11.05000 IN.
ASPECT RATIO	2.0580	2.05800
TAPER RATIO	.2451	.24510
CHORDS		
ROOT B.P. 108	570.6230 IN.	8.55900 IN.
TIP 1.00 B/2	137.8512 IN.	2.06800 IN.
M.A.C.	354.2376 IN.	5.31400 IN.
FUS. STA. OF 0.25 M.A.C.	1164.2370 IN.	17.46400 IN.
W.P. OF 0.25 M.A.C.	292.0000 IN.	4.38000 IN.
B.L. OF 0.25 M.A.C.	239.6779 IN.	3.59500 IN.
AIRFOIL SECTION (RI MOD NASA)		
ROOT B/2	.1130	.11300
TIP B/2	.1200	.12000
DATA FOR (1) OF (2) SIDES		
PLANFORM AREA	118.3330 SQ.FT.	.02260 SQ.FT.
L.E. INTERSECTS FUS. M.L. AT STA.	505.0000 IN.	7.57500 IN.
L.E. INTERSECTS WING AT STA.	1003.5000 IN.	15.05300 IN.

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

ELEVONS-E26

CONFIGURATION 140 A/B ORBITER ELEVONS, VL70-000400 DATA FOR (1) OF  
(2) SIDES. IDENTICAL TO E25 EXCEPT AIRFOIL THICKNESS  
DRAWING NUMBERS VL70-000200, VL70-000140B, AND SS-A00148

SCALE FACTOR = .01500

DIMENSION	FULL SCALE	MODEL SCALE
AREA	223.5814 SQ.FT.	.05030 SQ.FT.
SPAN(EQUIVALENT)	368.3400 IN.	5.52500 IN.
INBOARD EQUIVALENT CHORD	119.6230 IN.	1.79400 IN.
OUTBOARD EQUIVALENT CHORD	55.1922 IN.	.82800 IN.
RATIO MOVABLE SURFACE CHORD/ TOTAL SURFACE CHORD		
AT INBOARD EQUIV. CHORD	.2096	.20960
AT OUTBOARD EQUIV. CHORD	.4004	.40040
SWEEPBACK ANGLES		
LEADING EDGE	.0000 DEG.	.00000 DEG.
TRAILING EDGE	-10.0560 DEG.	-10.05600 DEG.
HINGELINE	.0000 DEG.	.00000 DEG.
AREA MOMENT (NORMAL TO HINGE LINE)	851.1502	.00287

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

## VERTICAL-Y8

CONFIGURATION 140 A/B. SIMILAR TO V5 WITH RADIUS ON TE UPPER CORNER  
AND LE LOWER CORNER WHERE VERTICAL MEETS FUSELAGE  
DRAWING NUMBERS VL70-000140A, AND VL70-000146A

SCALE FACTOR = .01500  
DIMENSION

FULL SCALE

MODEL SCALE

## TOTAL DATA

PLANFORM AREA (THEORETICAL)	413.2530 SQ.FT.	.09298 SQ.FT.
SPAN (THEORETICAL)	315.7200 IN.	4.73580 IN.
ASPECT RATIO	1.6750	1.67500
RATE OF TAPER	.5070	.50700
TAPER RATIO	.4040	.40399

## SWEEPBACK ANGLES

LEADING EDGE	45.0000 DEG.	45.00000 DEG.
TRAILING EDGE	25.9470 DEG.	25.94700 DEG.
0.25 ELEMENT LINE	41.1300 DEG.	41.13000 DEG.

## CHORDS

ROOT (THEORETICAL) WP	268.5000 IN.	4.02750 IN.
TIP (THEORETICAL) WP	108.4700 IN.	1.62710 IN.
M.A.C.	199.8076 IN.	2.99710 IN.
FUS. STA. OF 0.25 M.A.C.	1463.5000 IN.	21.95300 IN.
V.P. OF 0.25 M.A.C.	635.5220 IN.	9.53280 IN.
B.L. OF 0.25 M.A.C.	.0000 IN.	.00000 IN.

## AIRFOIL SECTION

LEADING WEDGE ANGLE	10.0000 DEG.	10.00000 DEG.
TRAILING WEDGE ANGLE	14.9200 DEG.	14.92000 DEG.
LEADING EDGE RADIUS (MIN.)	2.0000 IN.	.03000 IN.

## VOID AREA

VOID AREA	13.1700	.00296
BLANKETED AREA	.0000	.00000



TABLE III. - MODEL DIMENSIONAL DATA - Concluded.

RUDDER-R5

CONFIGURATION 140 A/B PER ROCKWELL LINES  
DRAWING NUMBER VL70-000095

SCALE FACTOR = .01500  
DIMENSION

	FULL SCALE	MODEL SCALE
AREA	106.3800 SQ.FT.	.02390 SQ.FT.
SPAN(EQUIVALENT)	201.0000 IN.	3.01500 IN.
INBOARD EQUIVALENT CHORD	91.5850 IN.	1.37400 IN.
OUTBOARD EQUIVALENT CHORD	50.8330 IN.	.76200 IN.
RATIO MOVABLE SURFACE CHORD/ TOTAL SURFACE CHORD		
AT INBOARD EQUIV. CHORD	.4000	.40000
AT OUTBOARD EQUIV. CHORD	.4000	.40000
SWEEPBACK ANGLES		
LEADING EDGE	34.8300 DEG.	34.83000 DEG.
TRAILING EDGE	26.2500 DEG.	26.25000 DEG.
HINGELINE	34.8300 DEG.	34.83000 DEG.
AREA MOMENT (NORMAL TO HINGE LINE)		
PRODUCT OF AREA AND MEAN CHORD	526.1300 FT(SQ.FT)	.00178 FT(SQ.FT)

Notes:

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrow
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

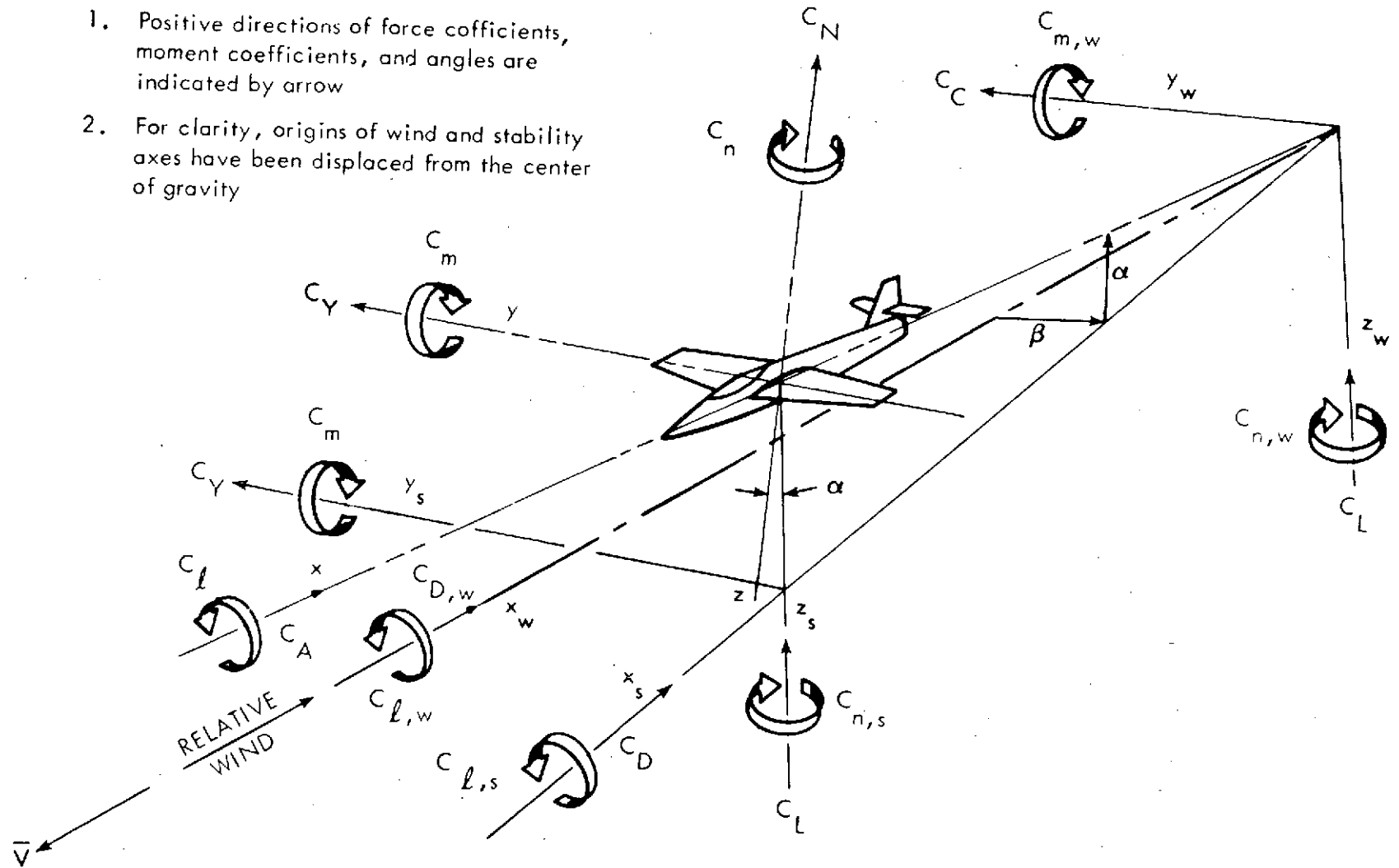


Figure 1. - Axis systems.

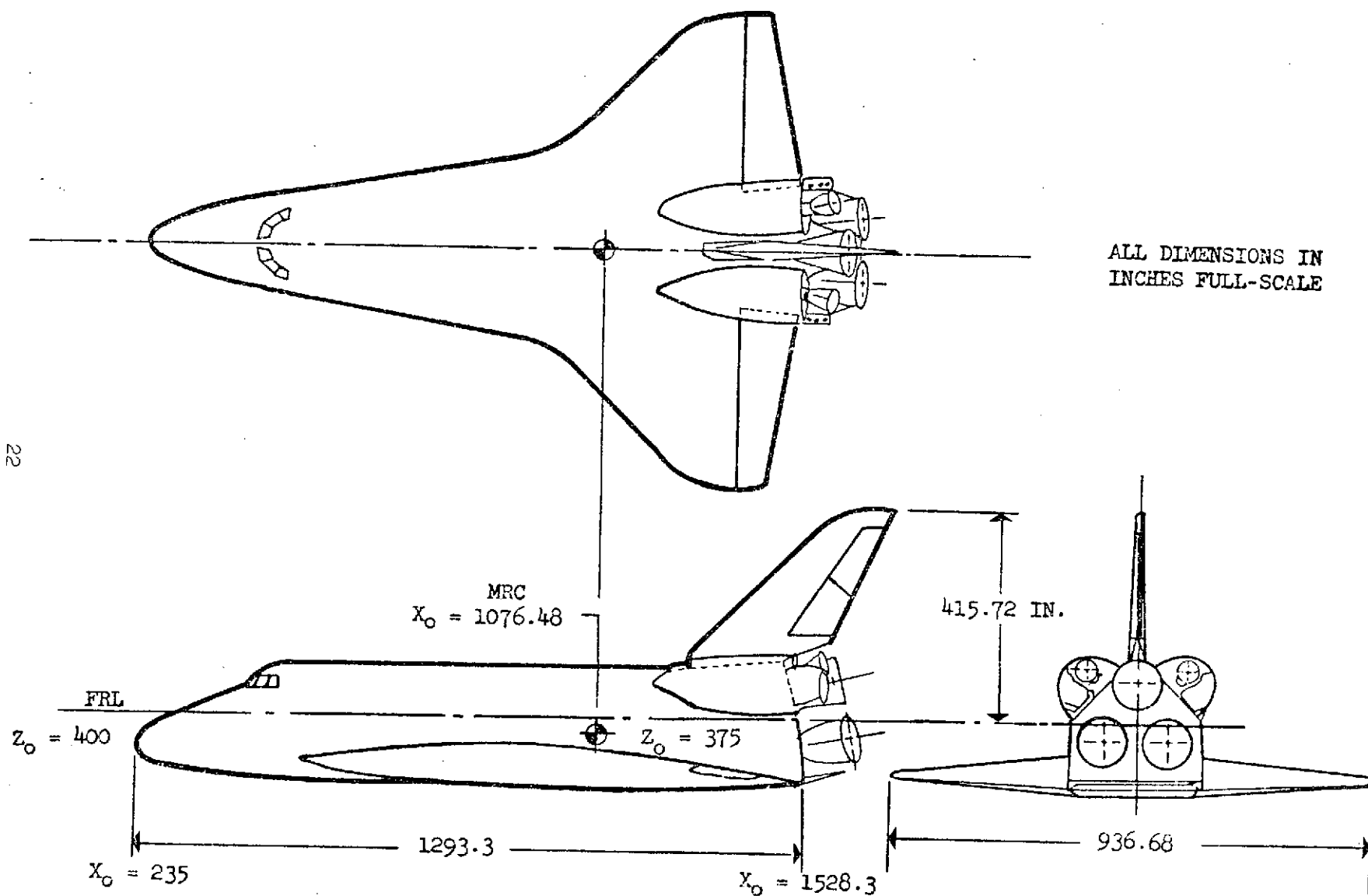


Figure 2. - SSV Orbiter Configuration 140 A/B for Test OA20C.

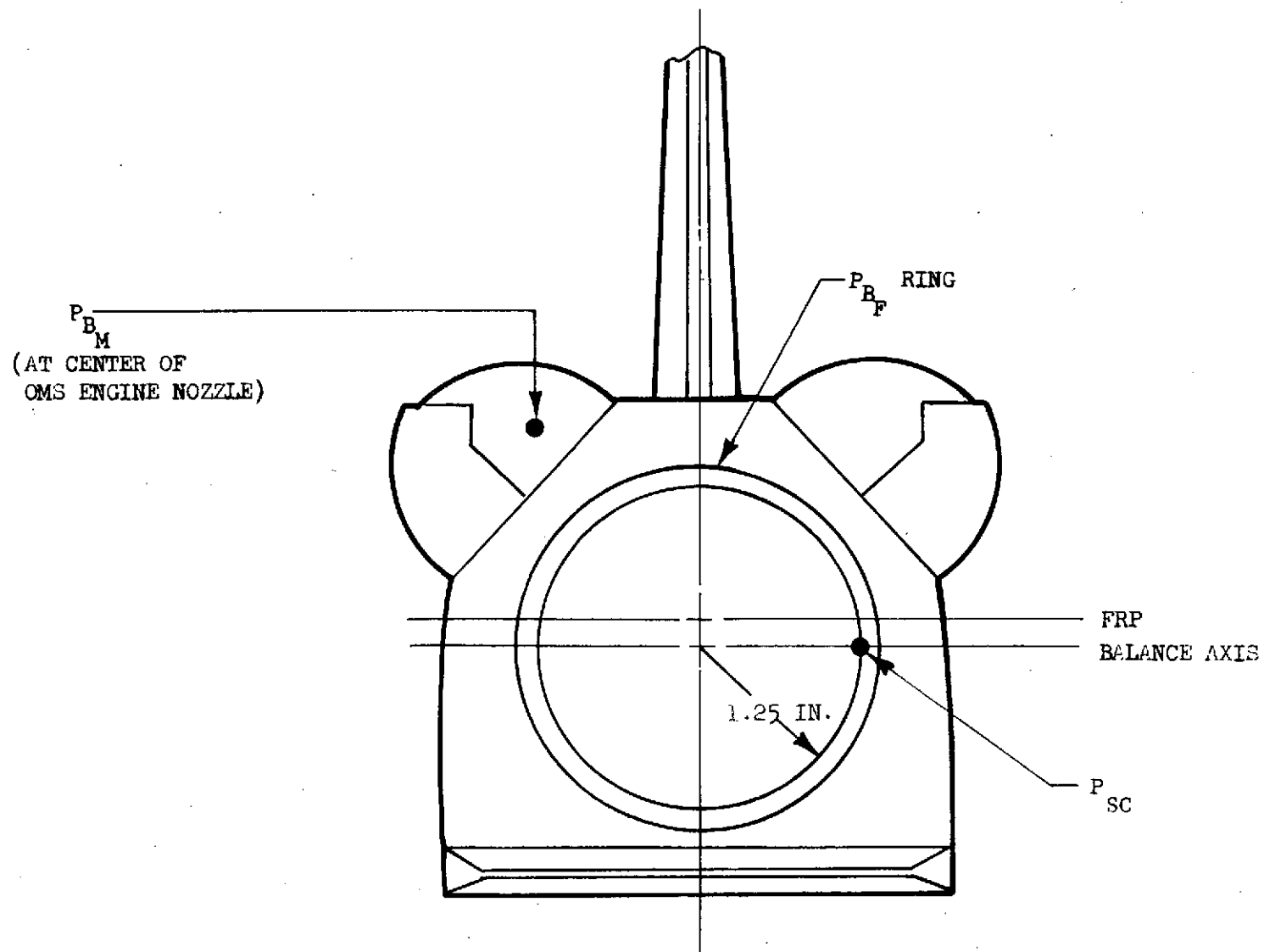


Figure 3. - Base and Cavity Pressure Locations for Test OA20C.

## DATA FIGURES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{KQ2016}	0A20C LRC UPVT 1057 -140A/B ORBITER
{KQ2017}	DATA NOT AVAILABLE
{KQ2018}	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
2.500	.000	54.920	.000	SREF	2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117 IN.
1.250	.000	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

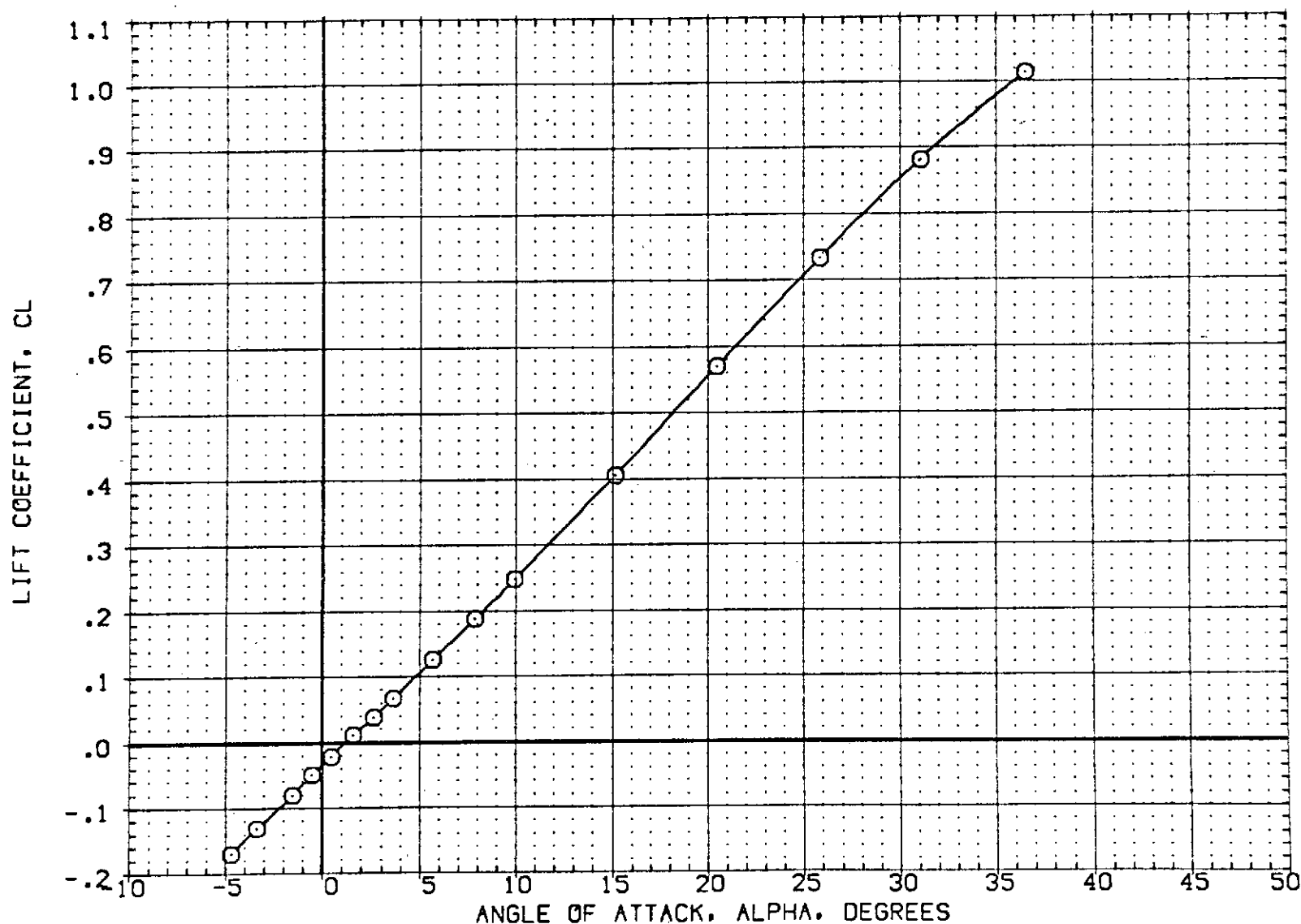


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	BA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DATA NOT AVAILABLE
(K02018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

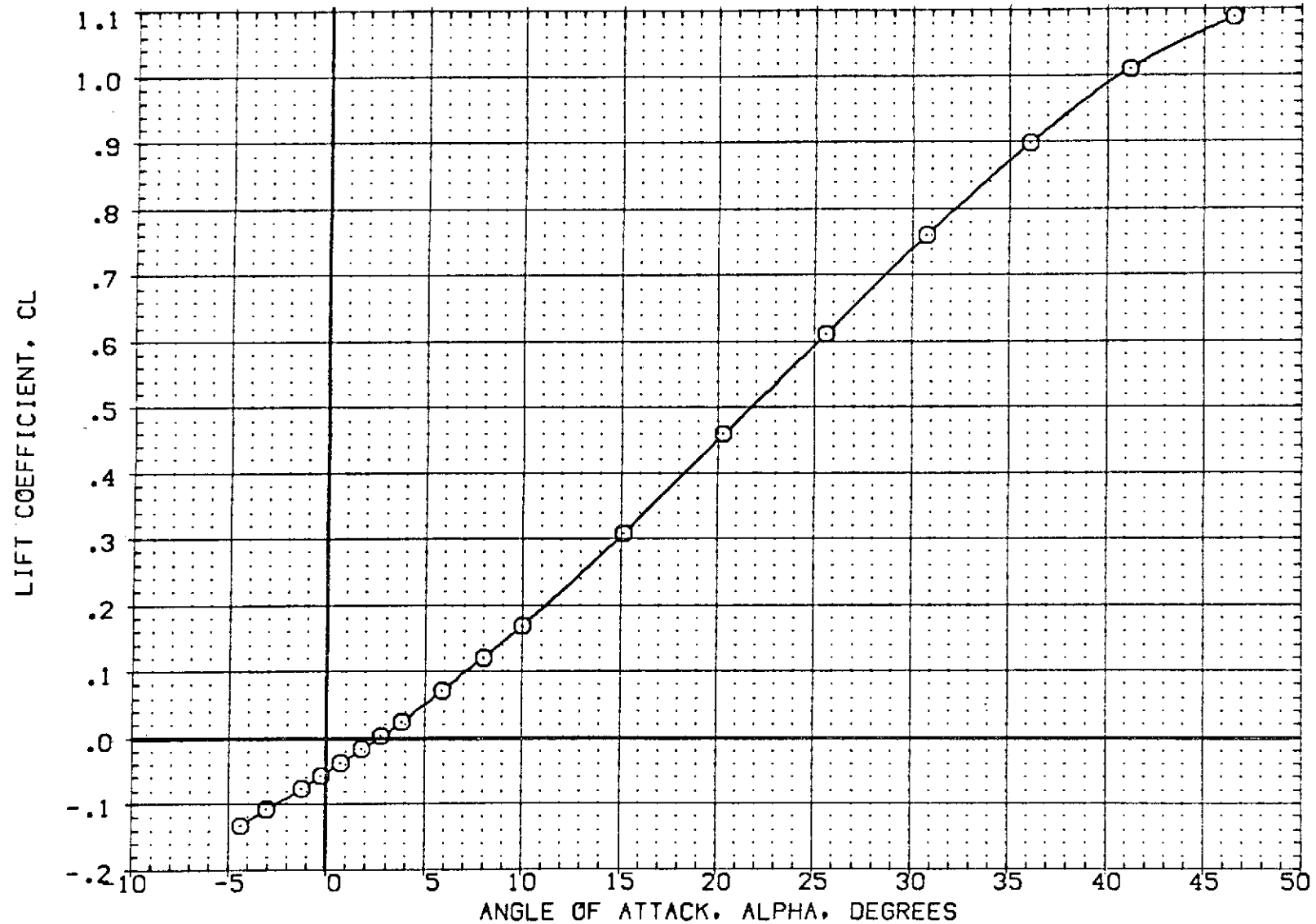


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	DA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DA20C LRC UPVT 1057 -140A/B ORBITER
(K02018)	DA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

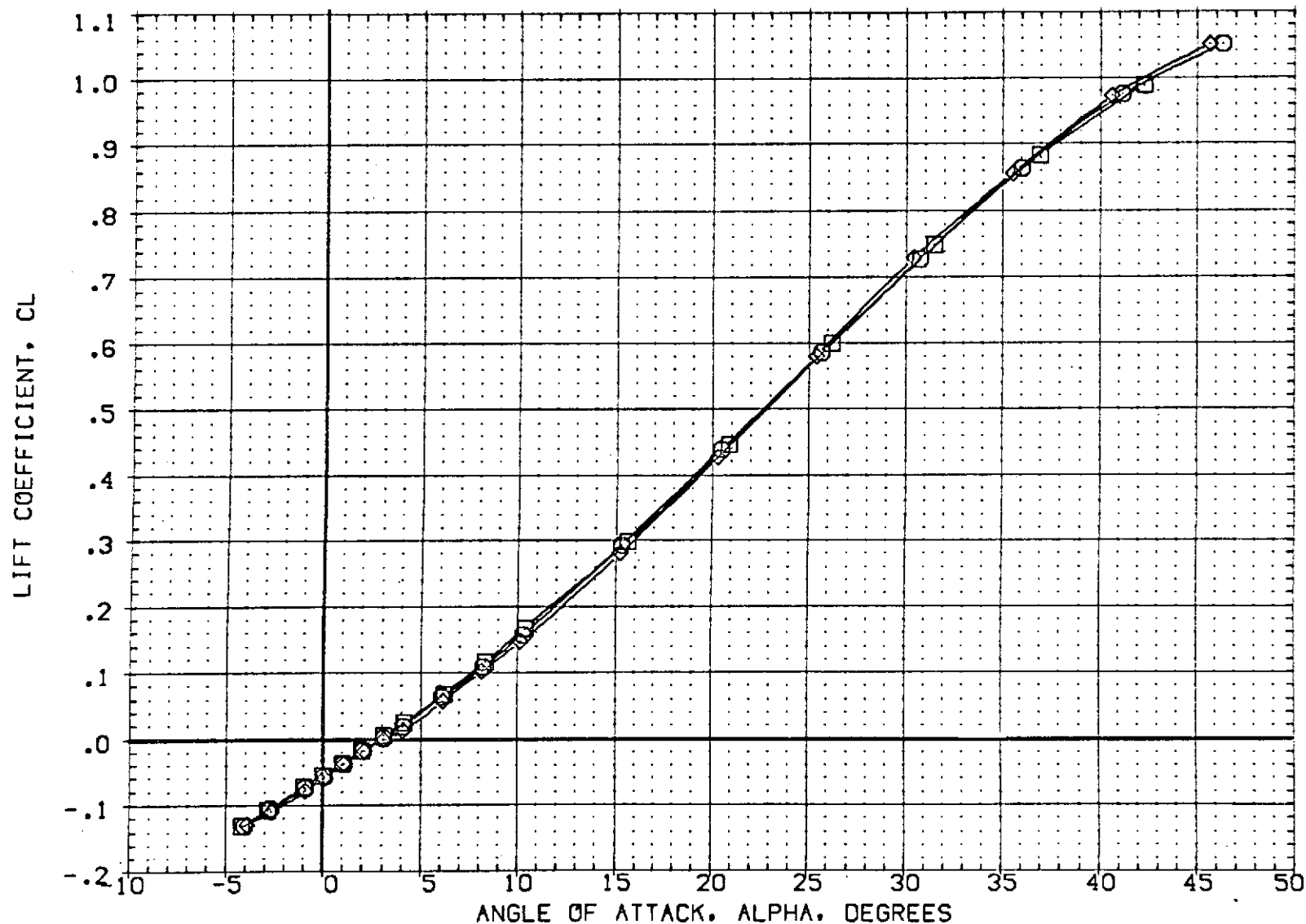


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DATA NOT AVAILABLE
(K02018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

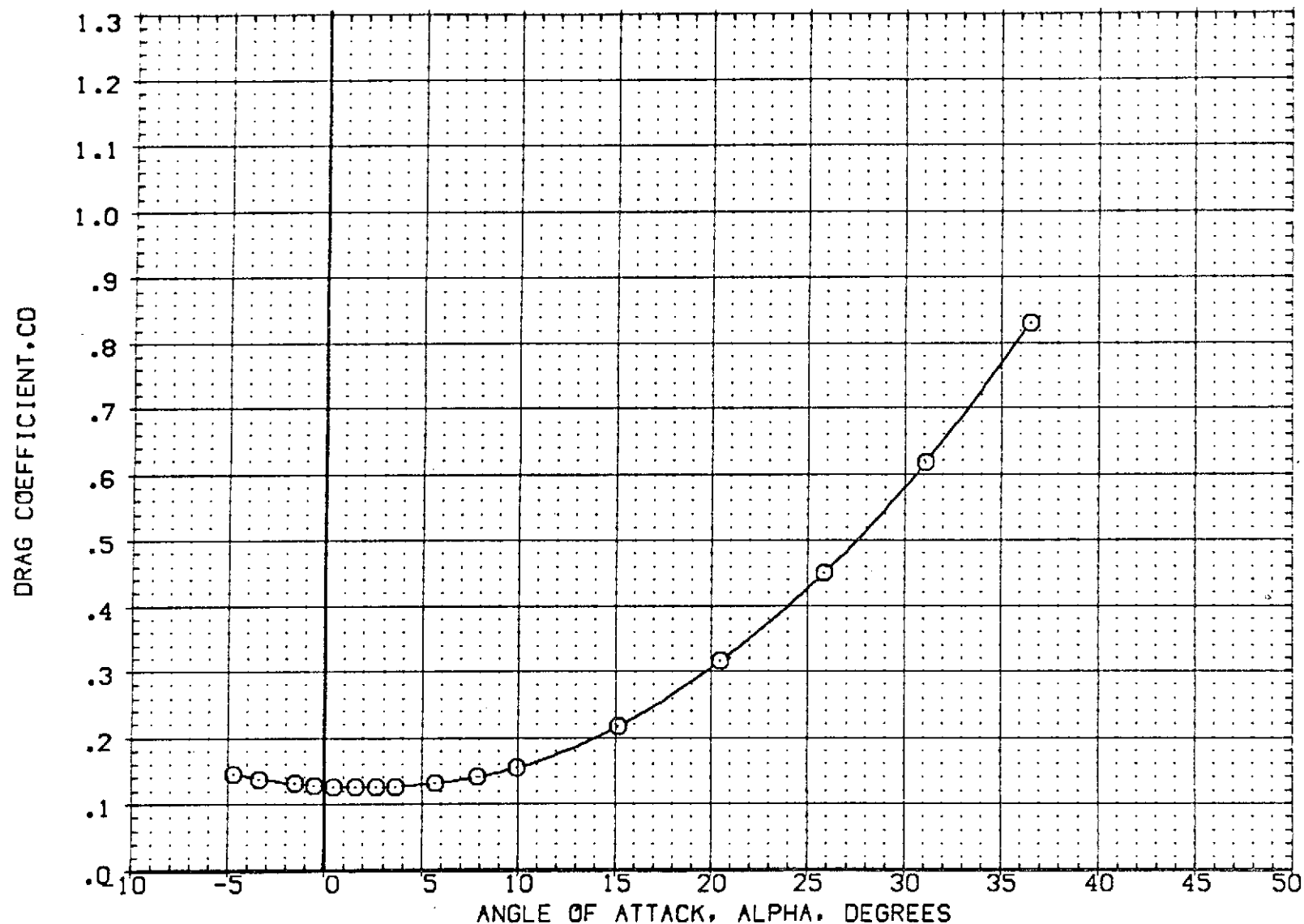


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	□ 0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2017)	□ DATA NOT AVAILABLE
(KQ2018)	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	50.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

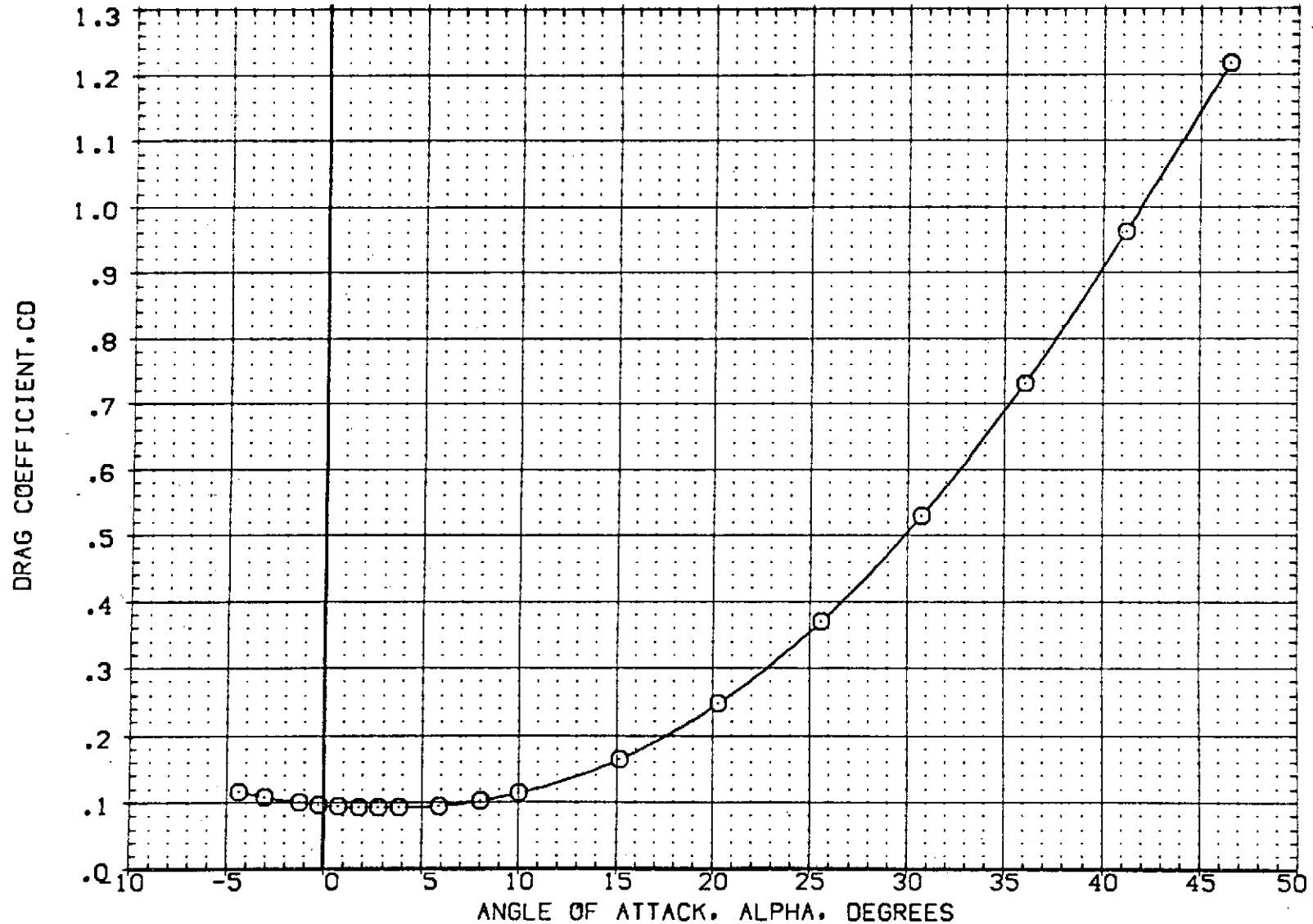


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2017)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2018)	◇ OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDSBK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

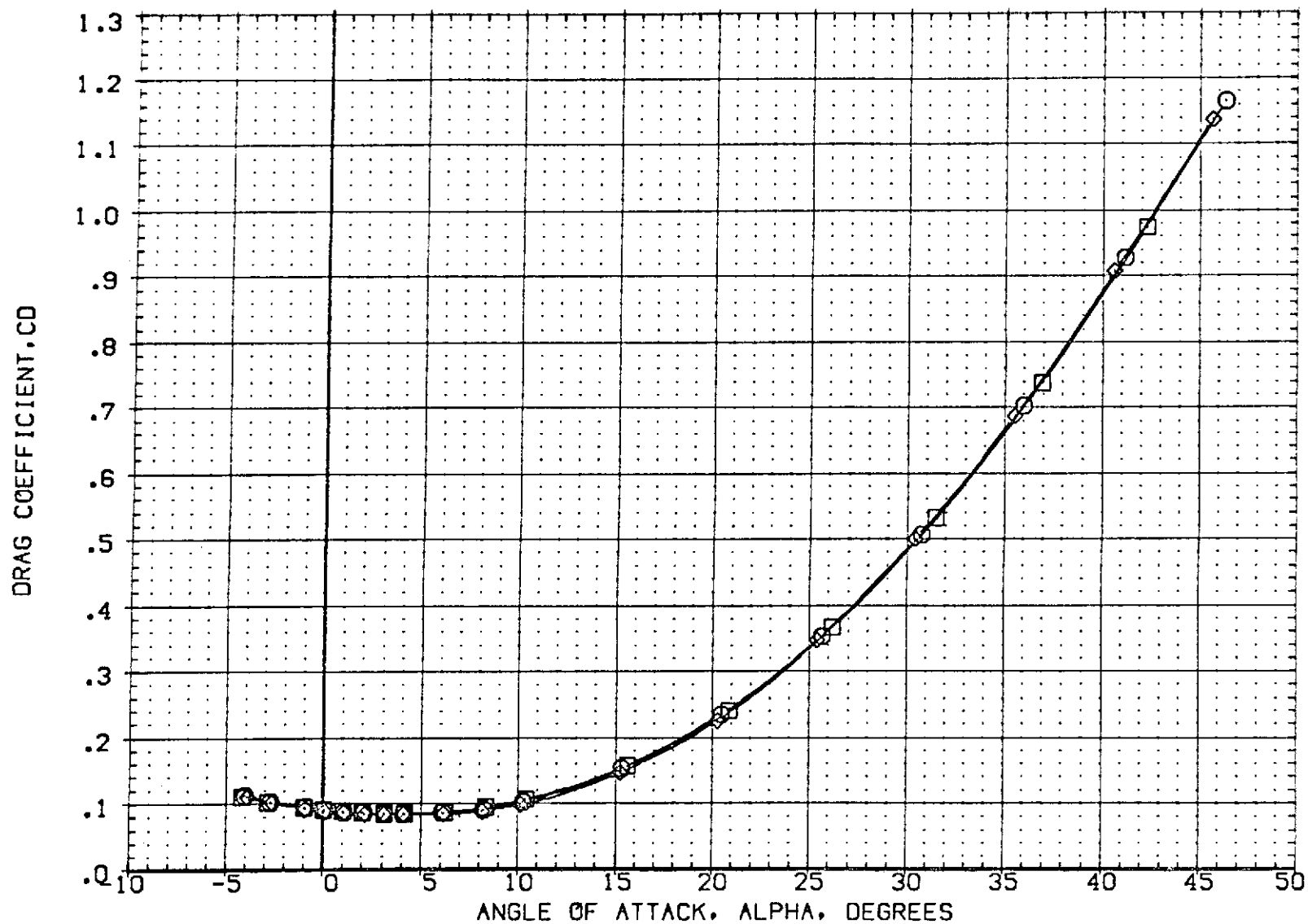


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DATA NOT AVAILABLE
(K02018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

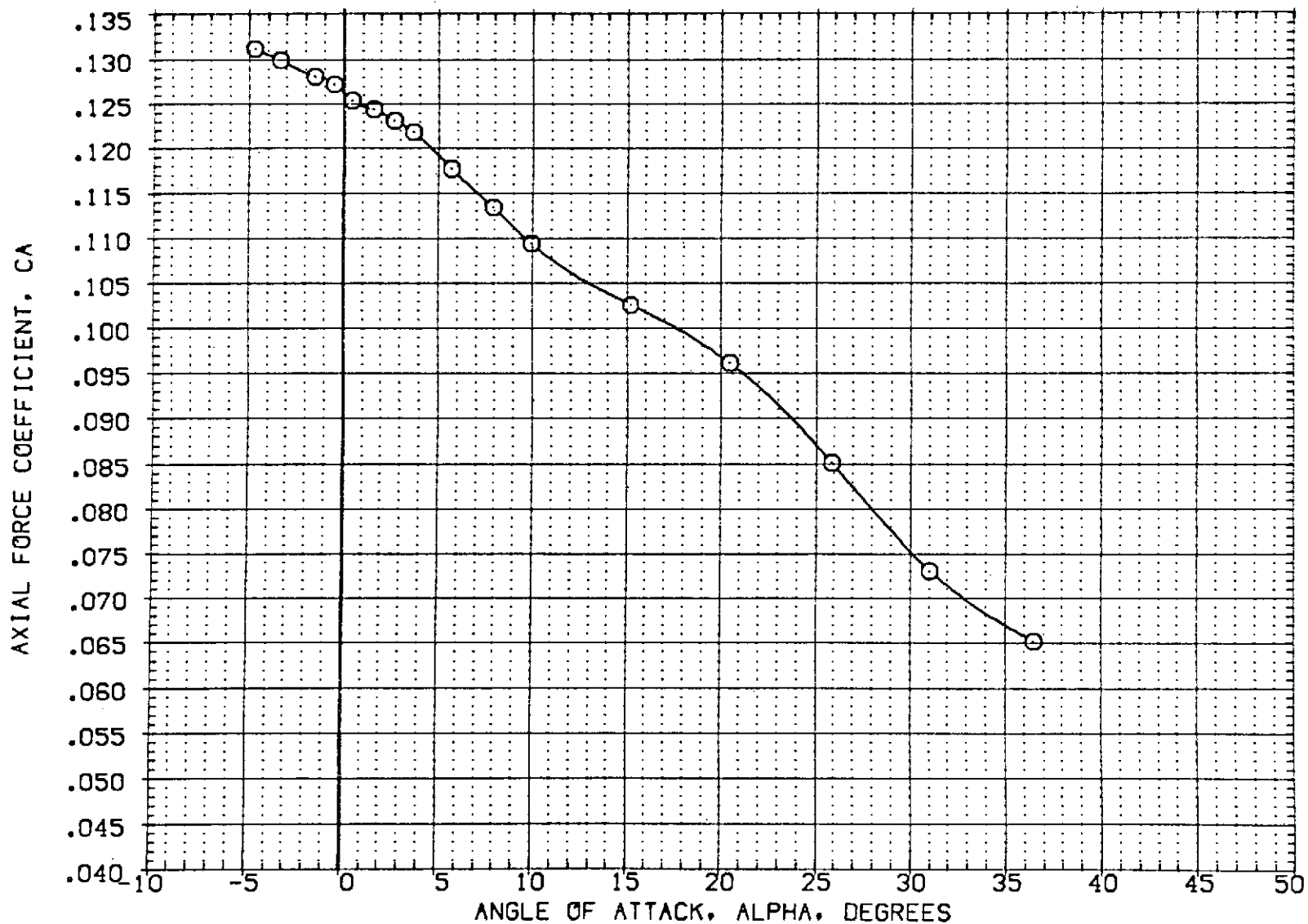


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02016) ○ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (K02017) □ DATA NOT AVAILABLE  
 (K02018) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

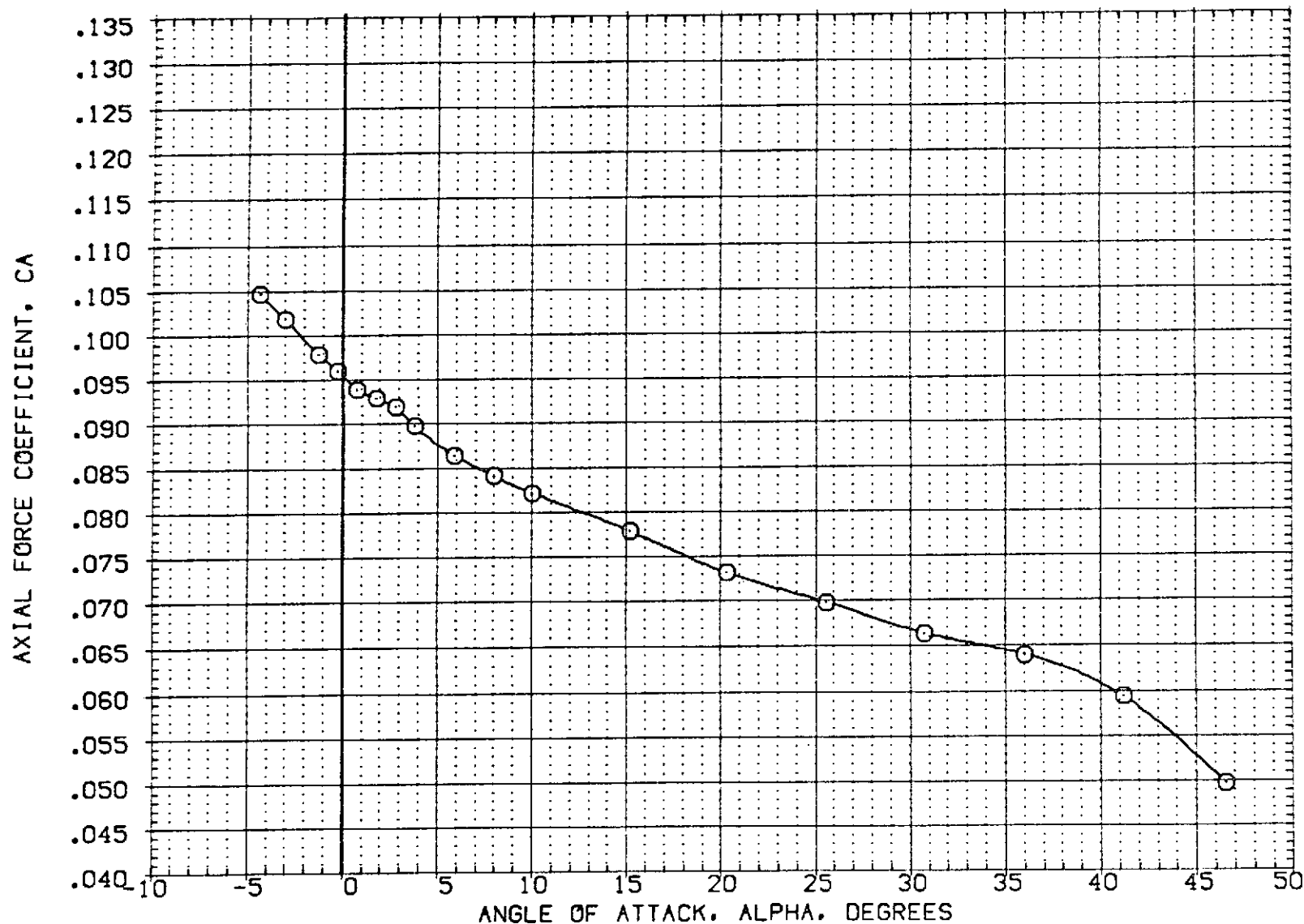


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(8)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2017)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2018)	OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

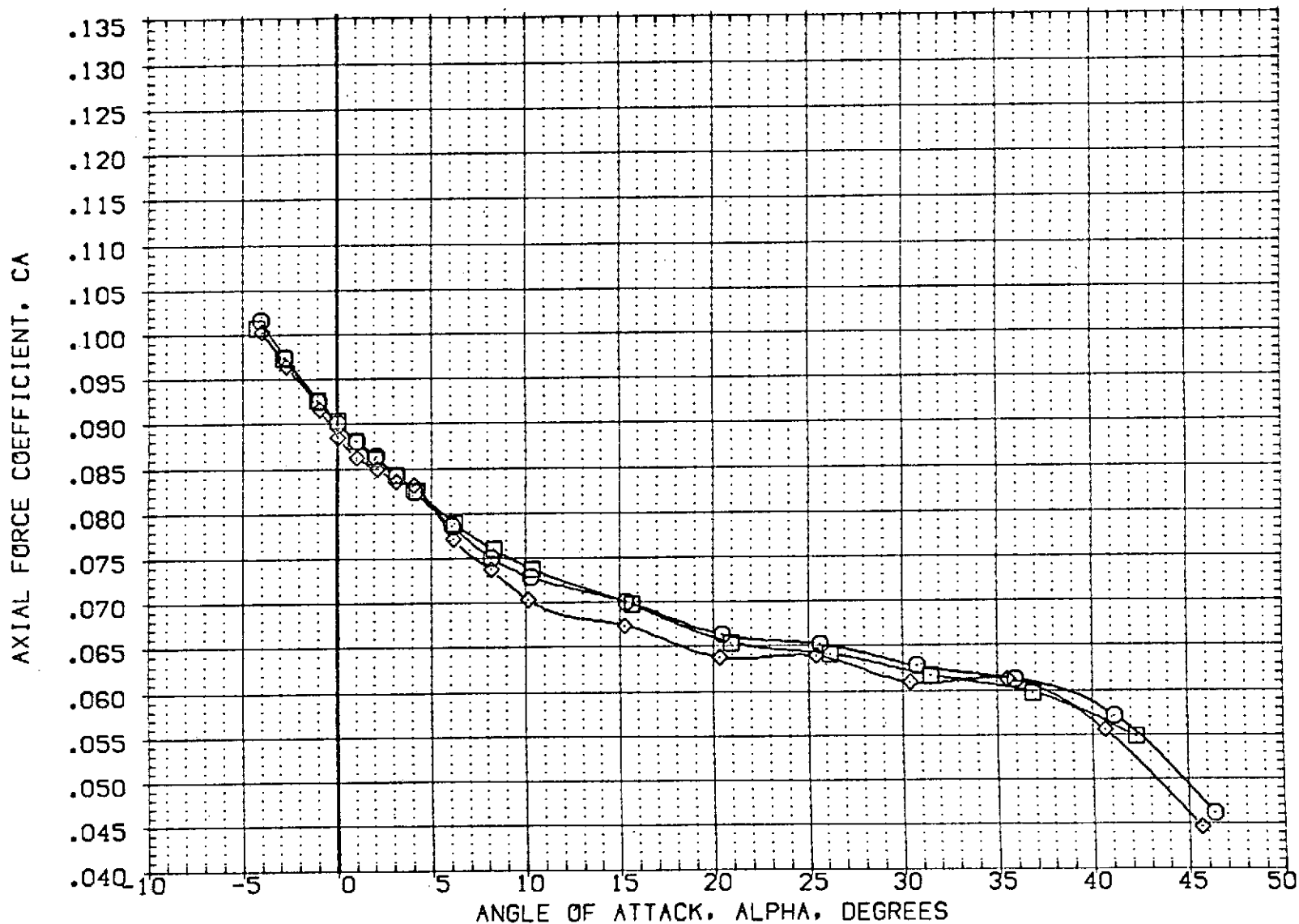


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	GA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DATA NOT AVAILABLE
(K02018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	50.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

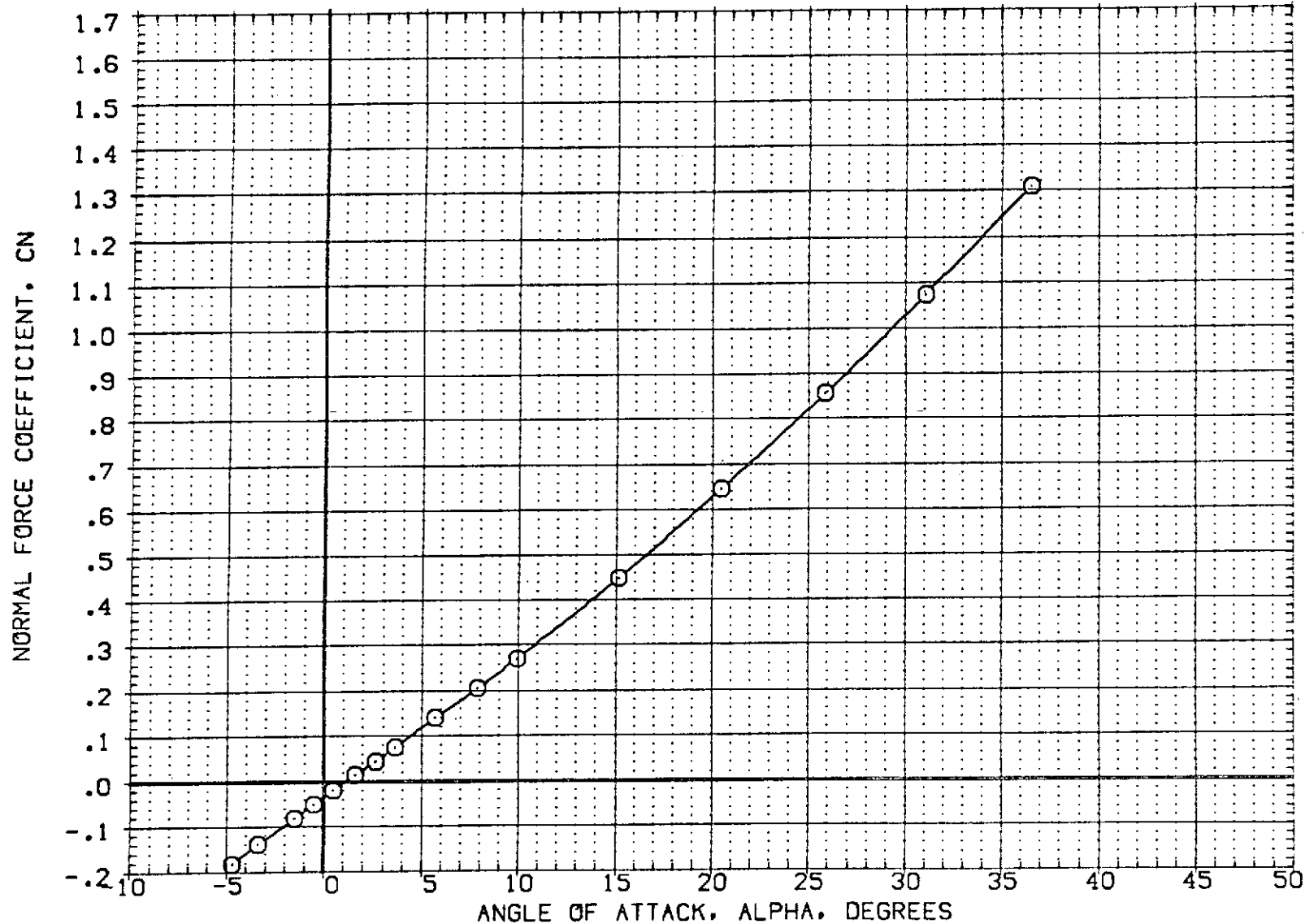


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 [K02016] ○ 0A20C LRC UPWT 1057 -140A/B ORBITER  
 [K02017] □ DATA NOT AVAILABLE  
 [K02018] ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

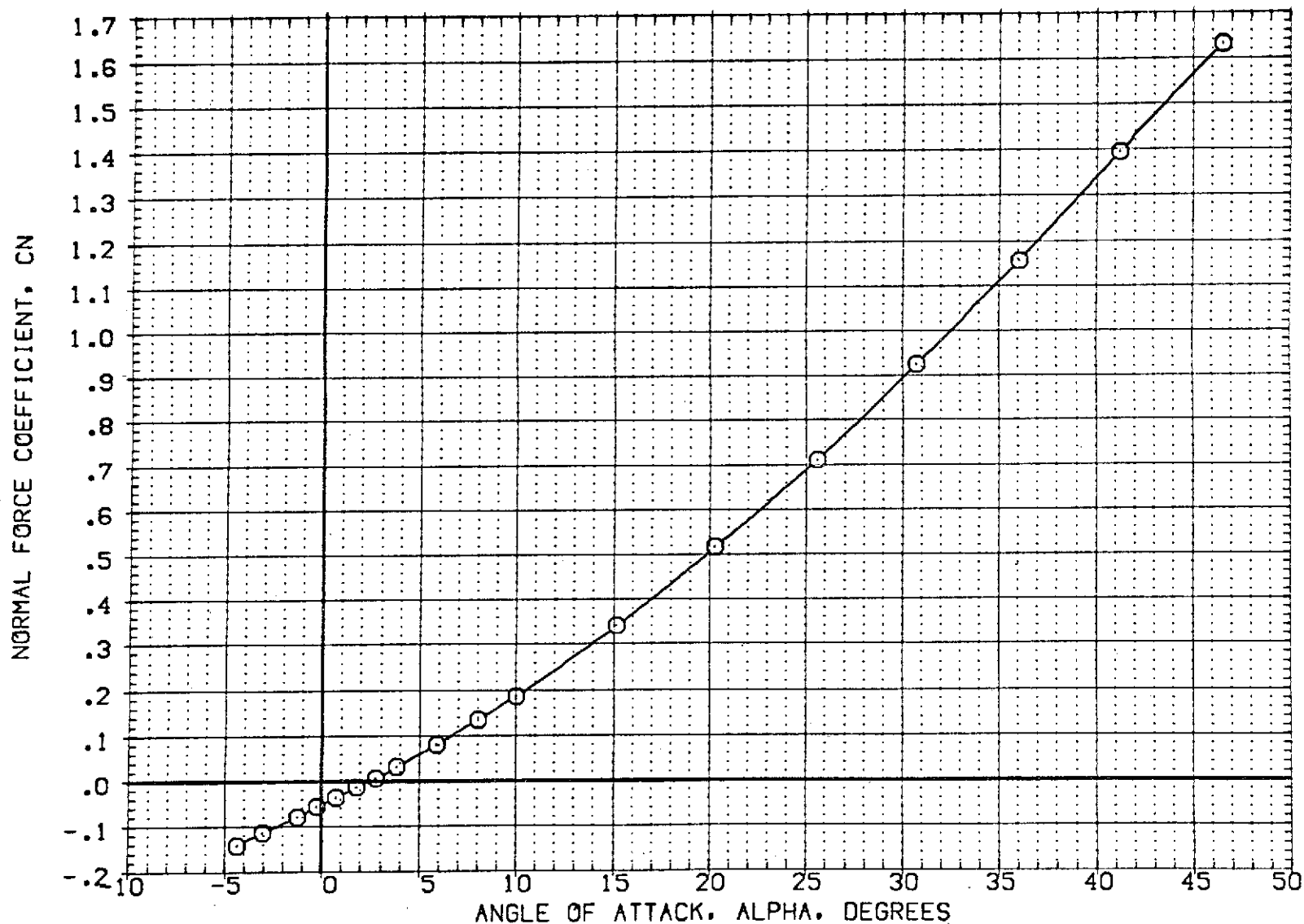


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)  
 (B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02018)	OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

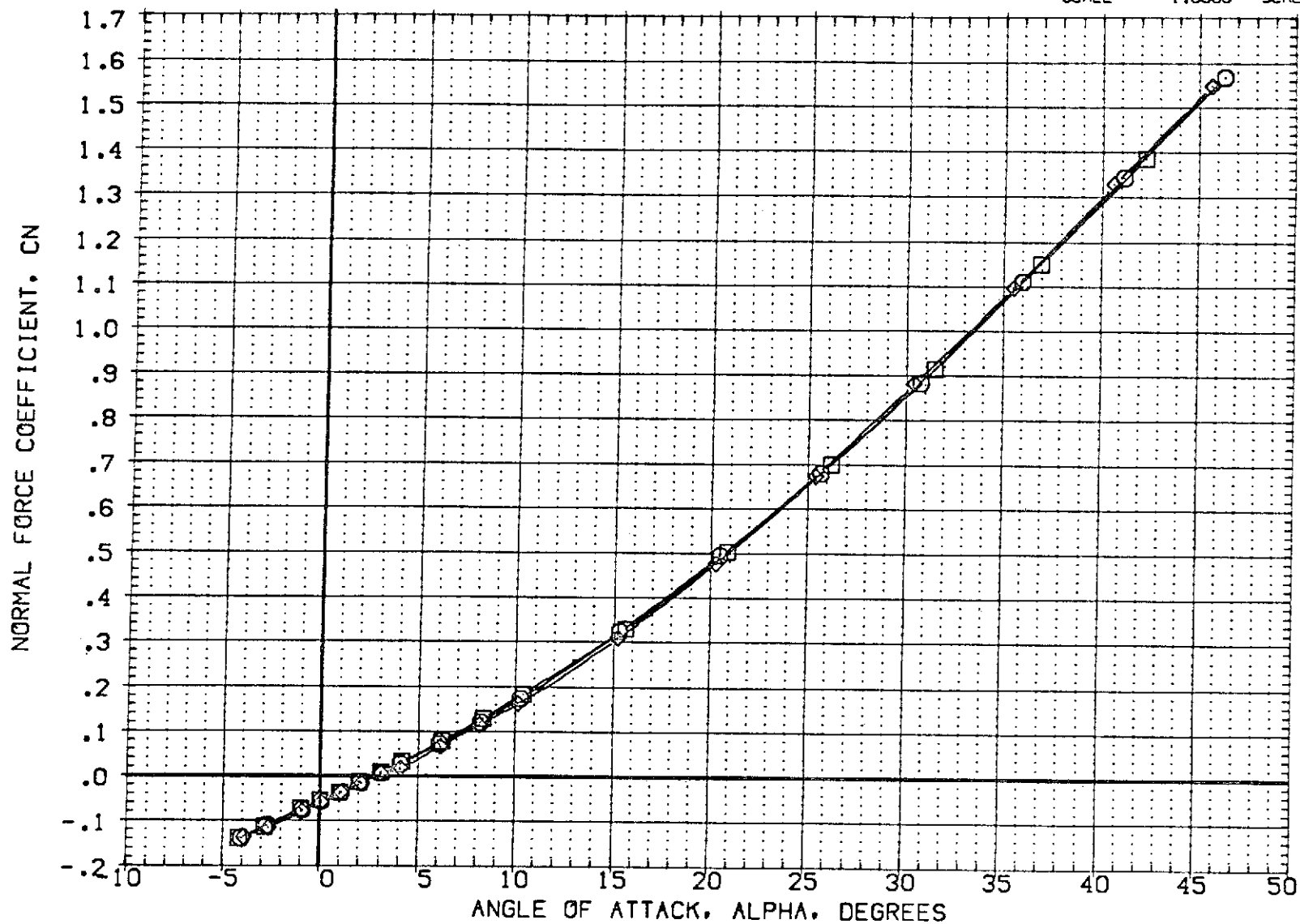


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)  
(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	○	QA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2017)	□	DATA NOT AVAILABLE
(KQ2018)	◇	DATA NOT AVAILABLE

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	50.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

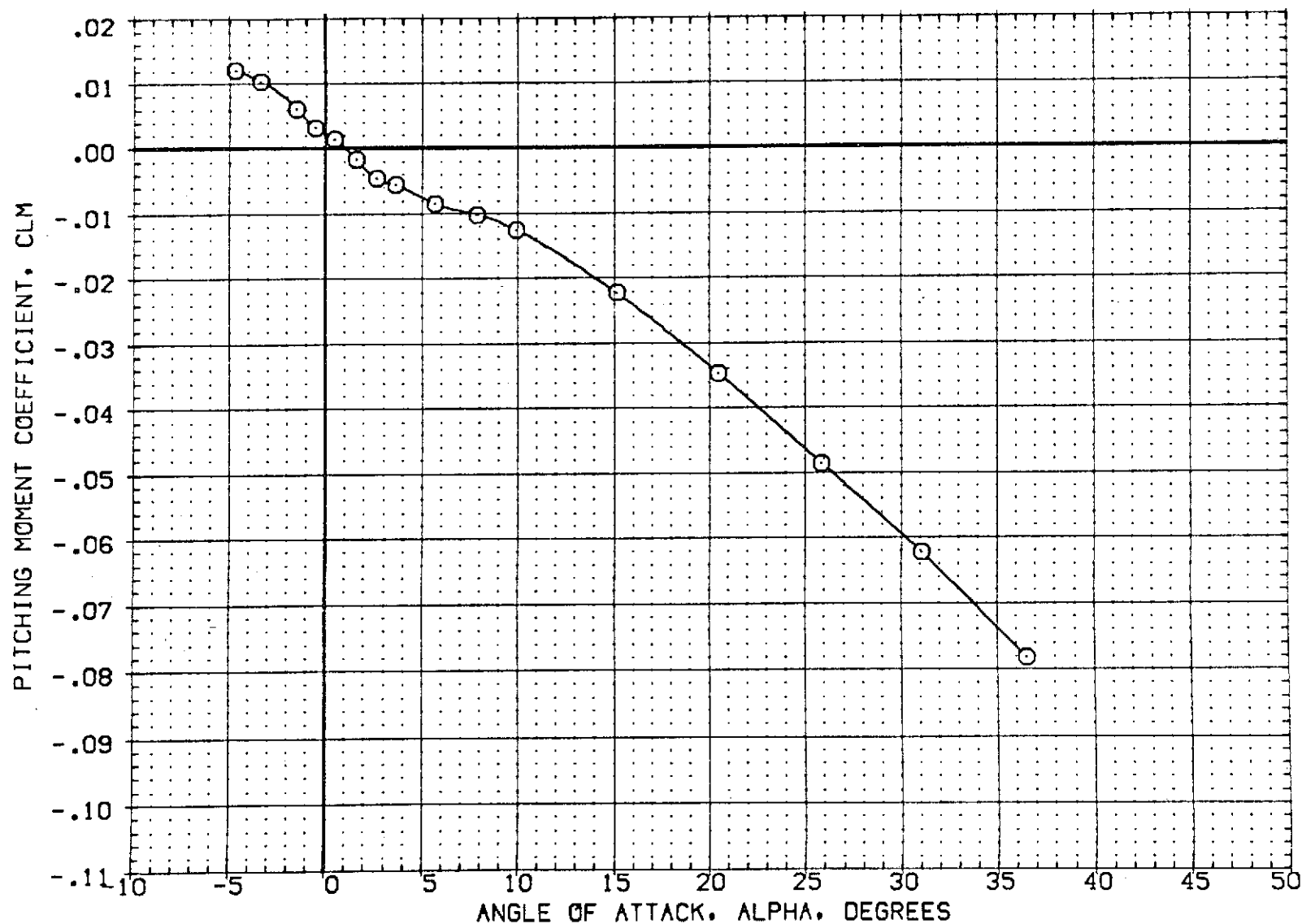


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2017)	□ DATA NOT AVAILABLE
(KQ2018)	◇ DATA NOT AVAILABLE

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

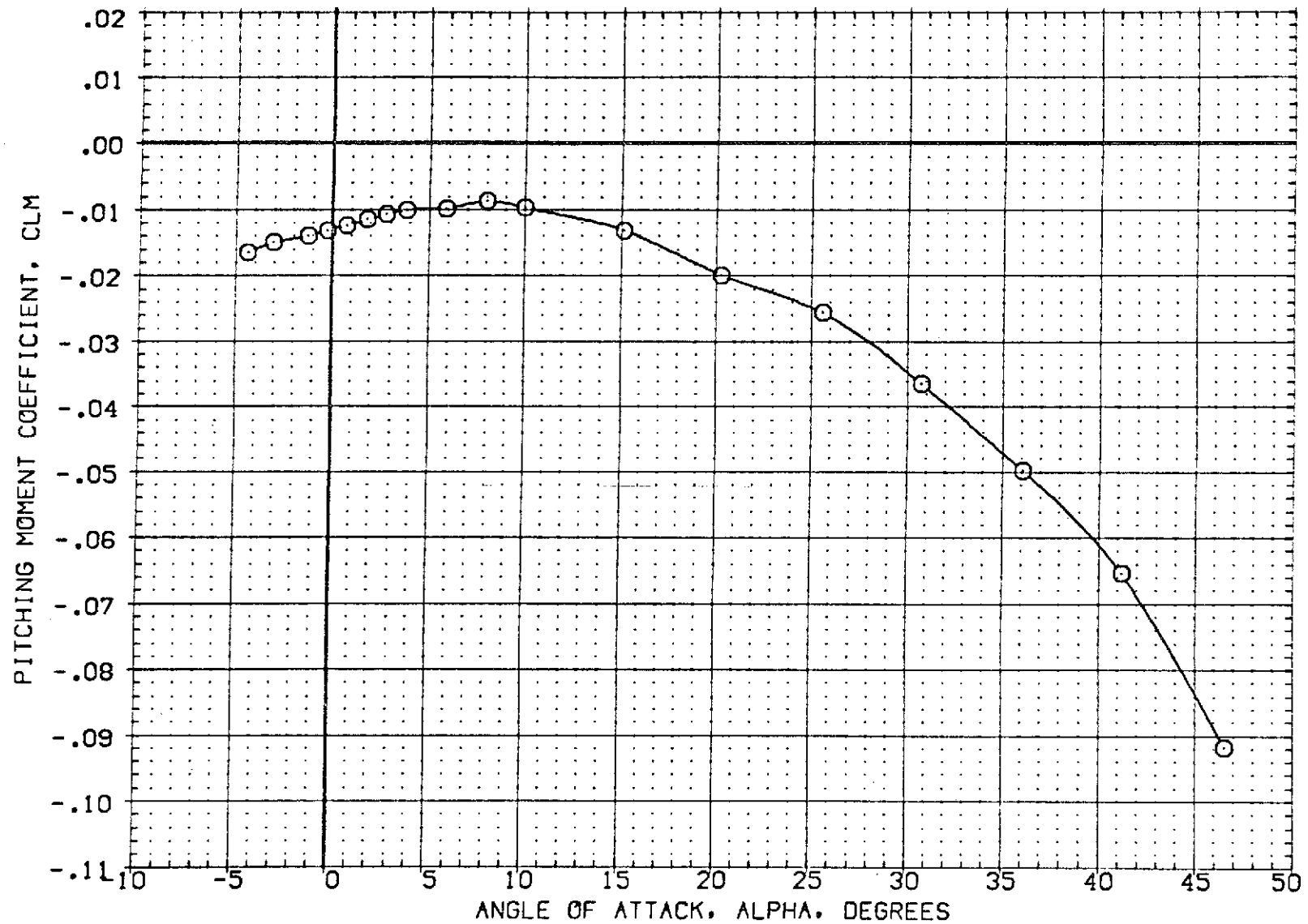


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[K02016]	0A20C LRC UPVT 1057 -140A/B ORBITER
[K02017]	0A20C LRC UPVT 1057 -140A/B ORBITER
[K02018]	0A20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	50.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

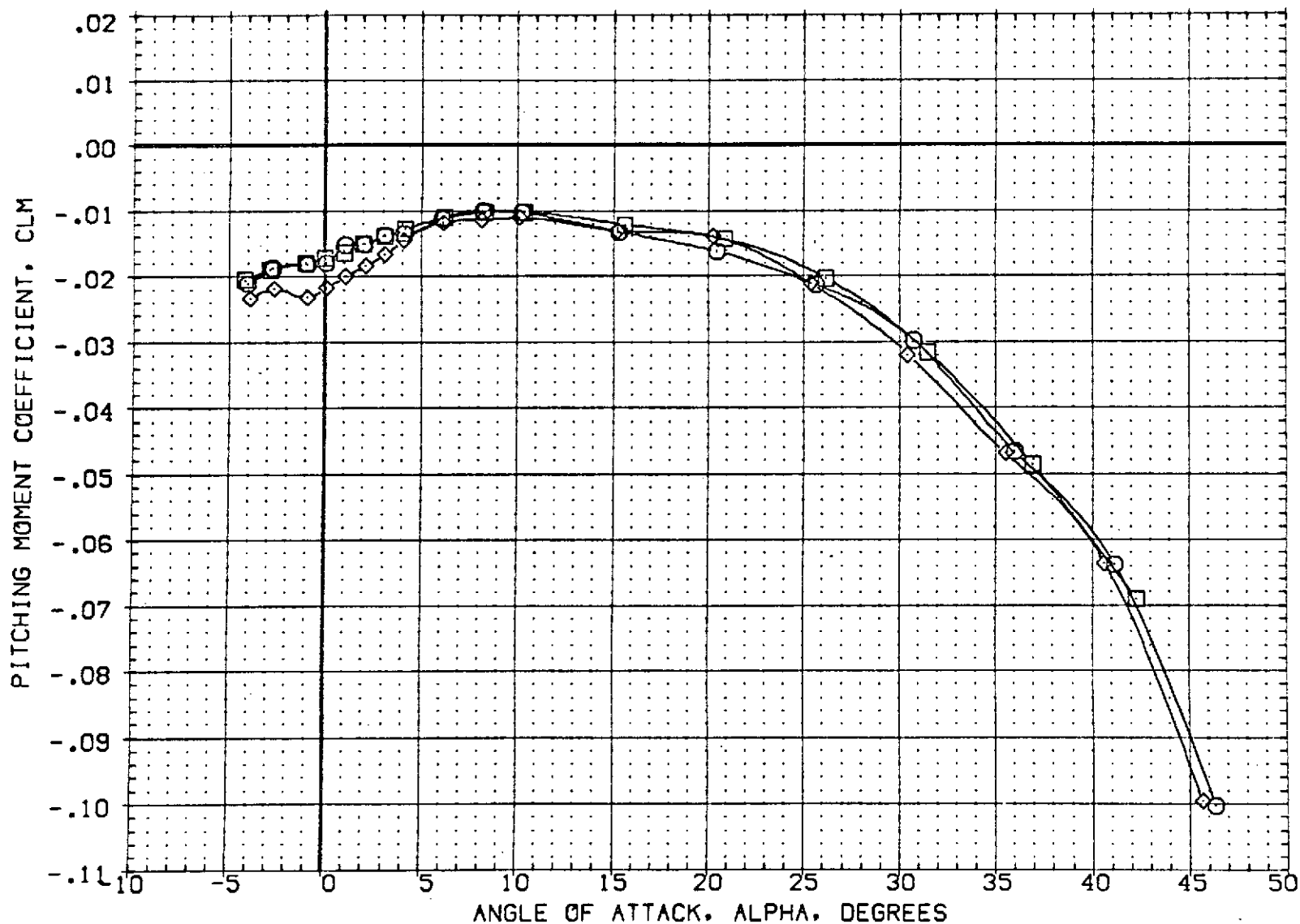





FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02016)  0A206-LRC UPVT 1057 -140A/B ORBITER  
 (K02017)  DATA NOT AVAILABLE  
 (K02018)  DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

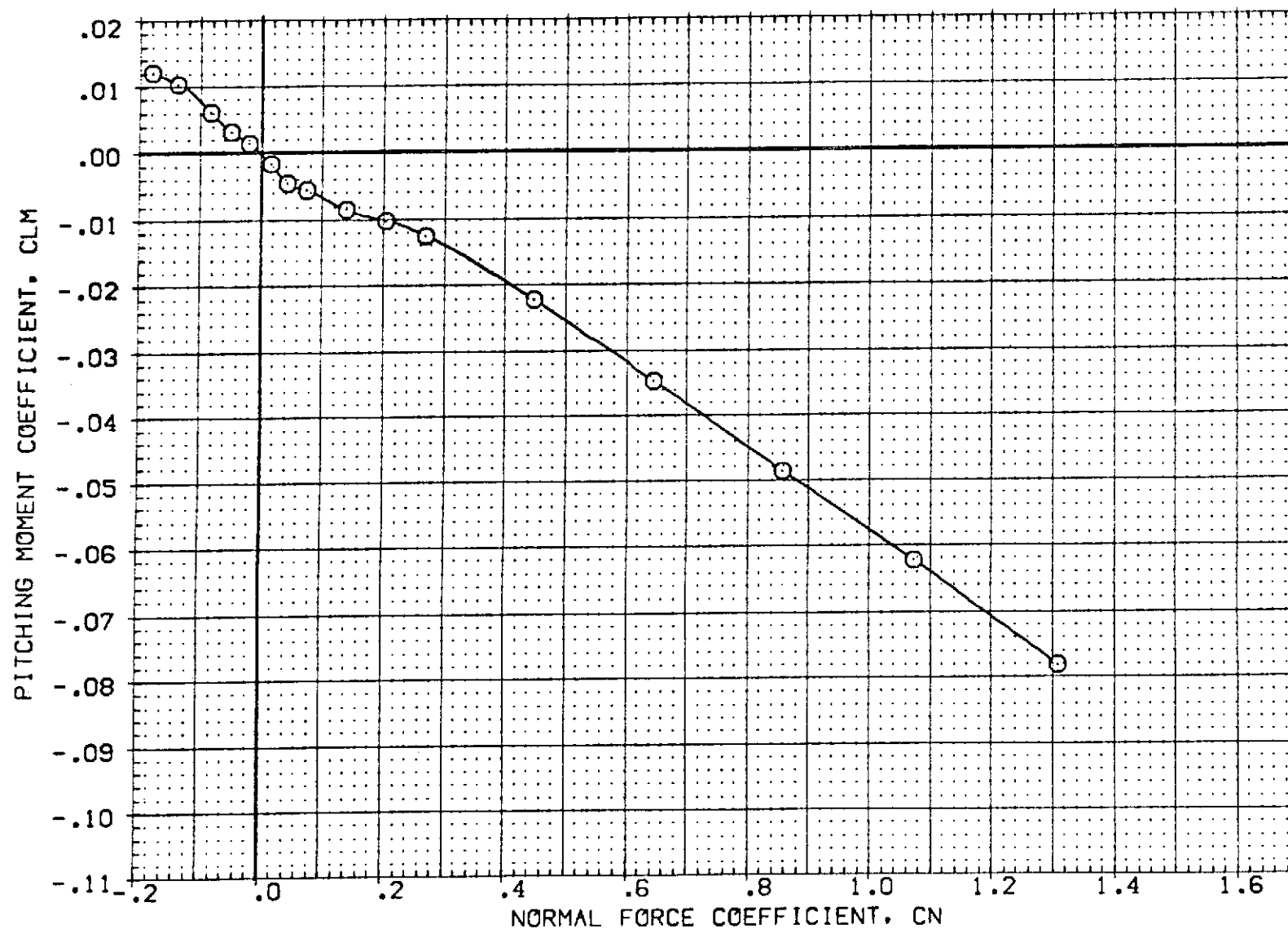


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2017)	DATA NOT AVAILABLE
(KQ2018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

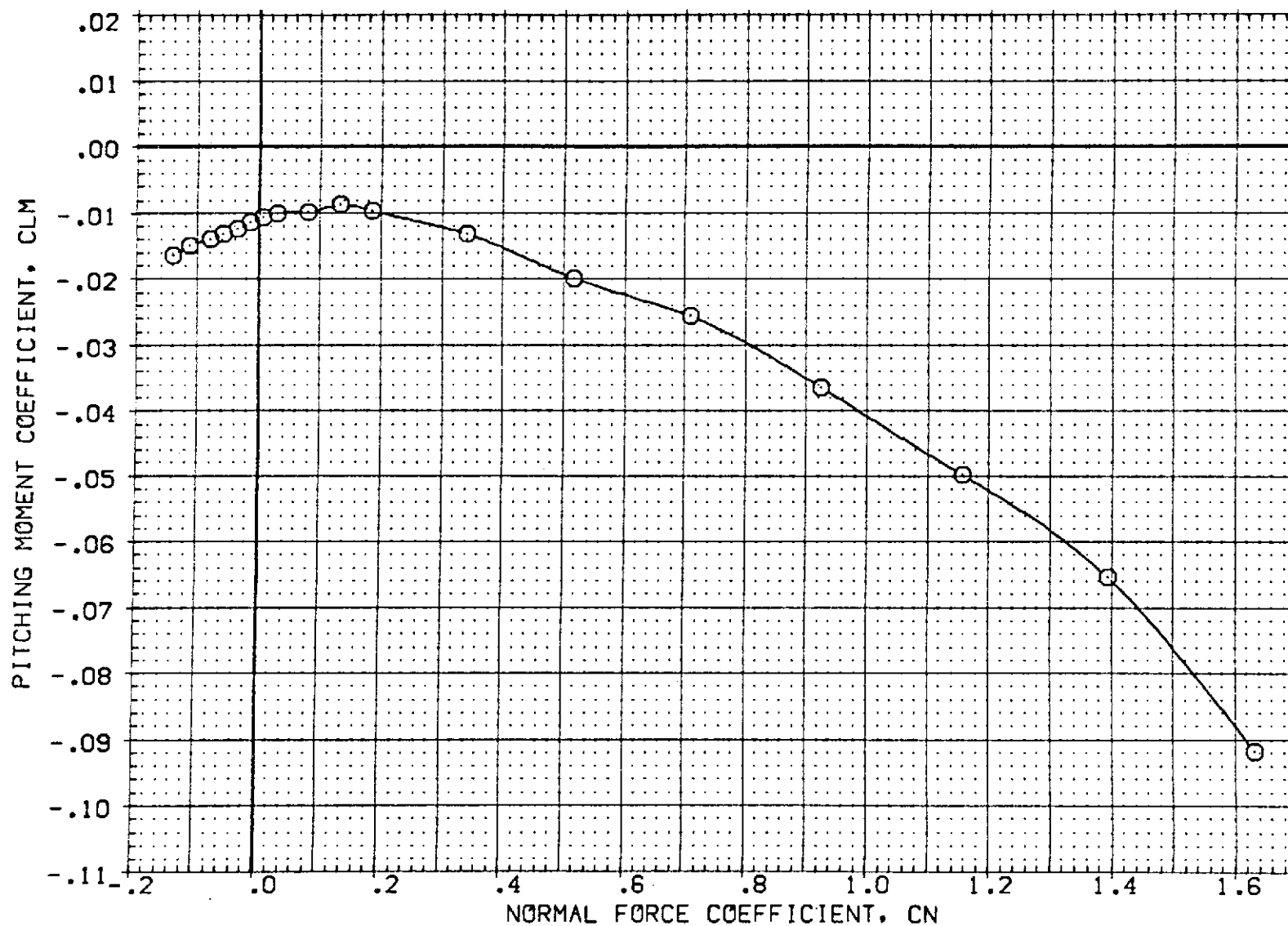


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02017)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02018)	OA20C LRC UPWT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

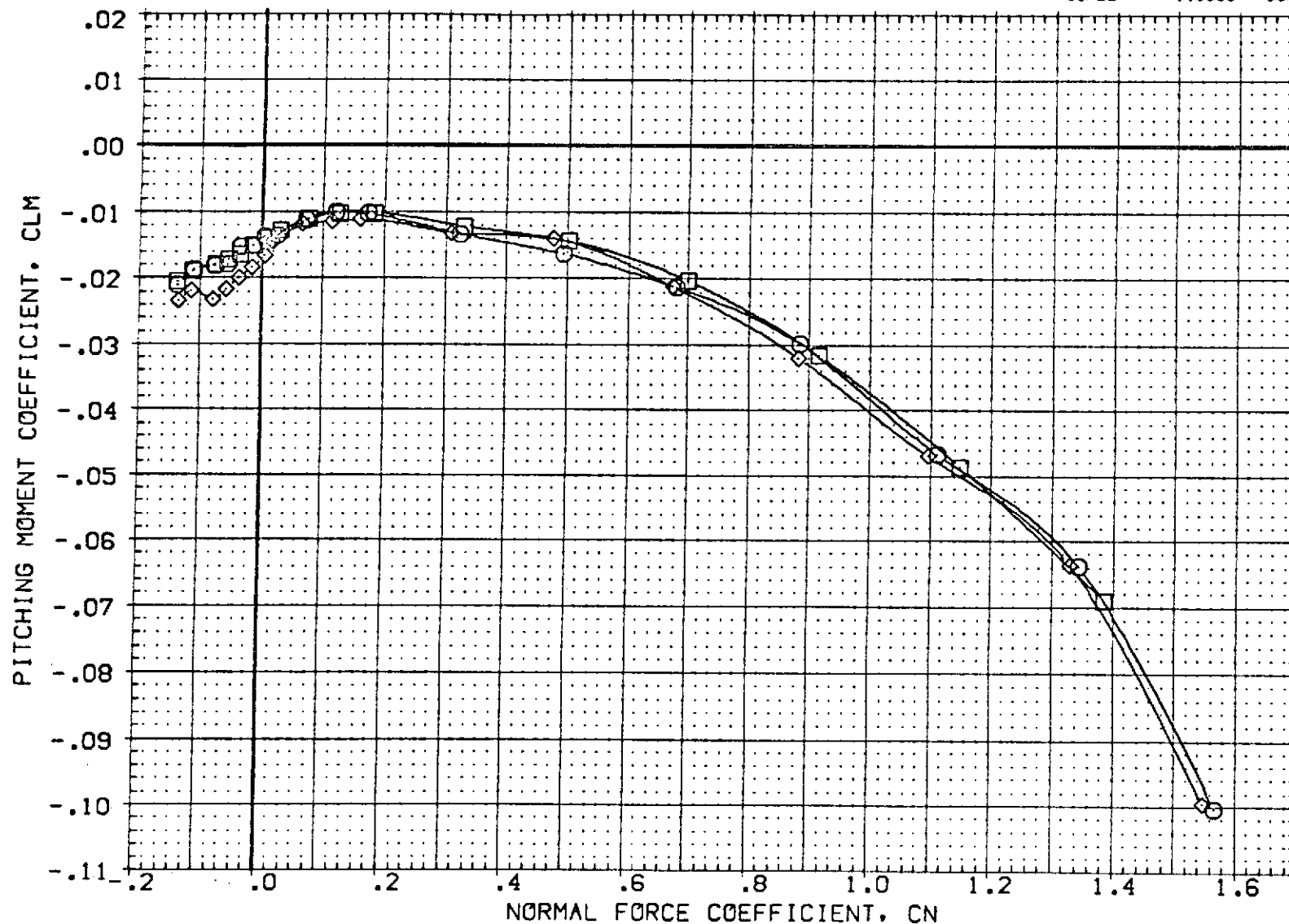


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	BA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	DATA NOT AVAILABLE
(K02018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

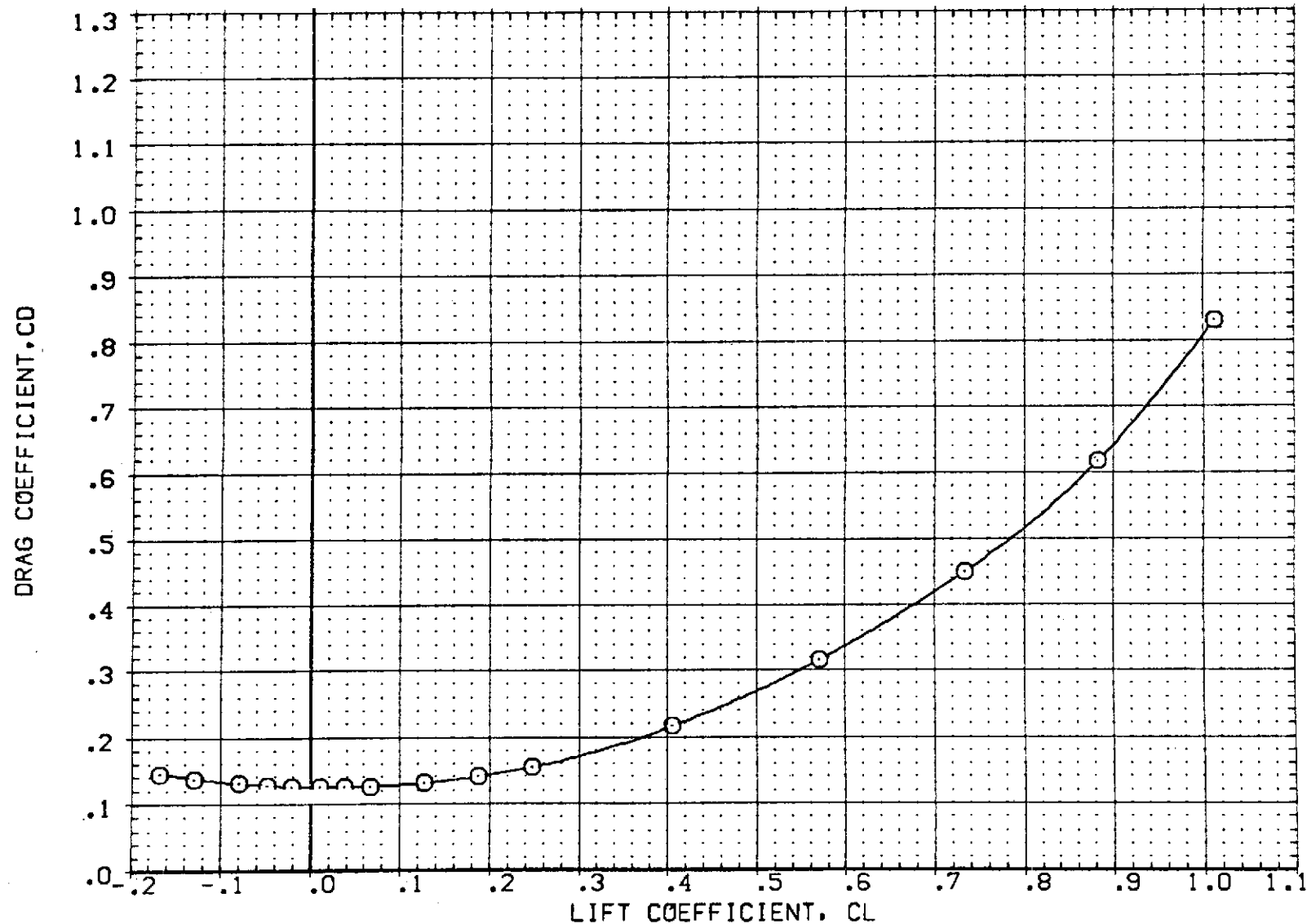


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02016) ○ BA20C LRC UPVT 1057 -140A/B ORBITER  
 (K02017) □ DATA NOT AVAILABLE  
 (K02018) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
2.500	.000	54.920	.000	SREF	2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117 IN.
1.250	.000	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

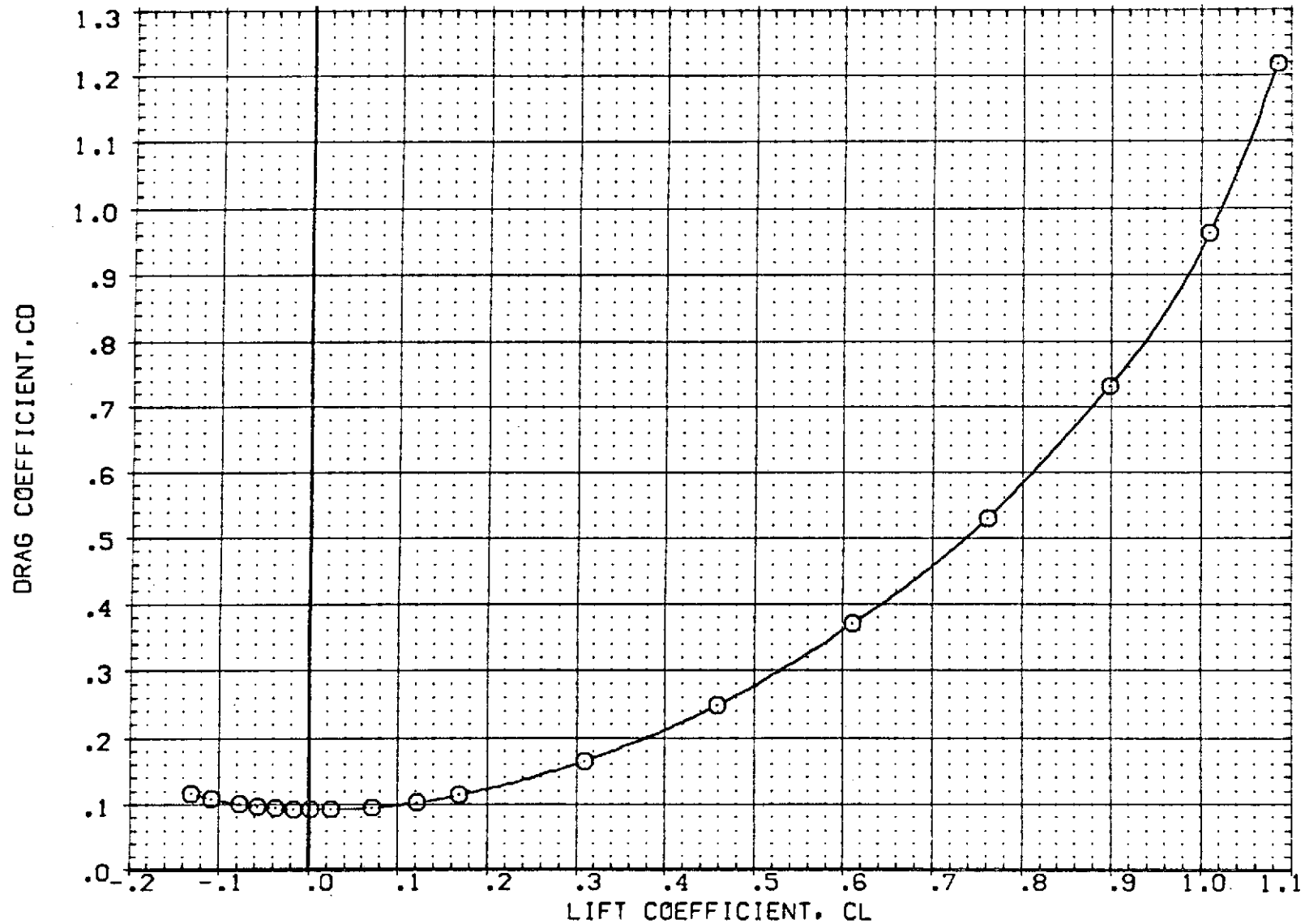


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	BA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	BA20C LRC UPVT 1057 -140A/B ORBITER
(K02018)	BA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	50.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

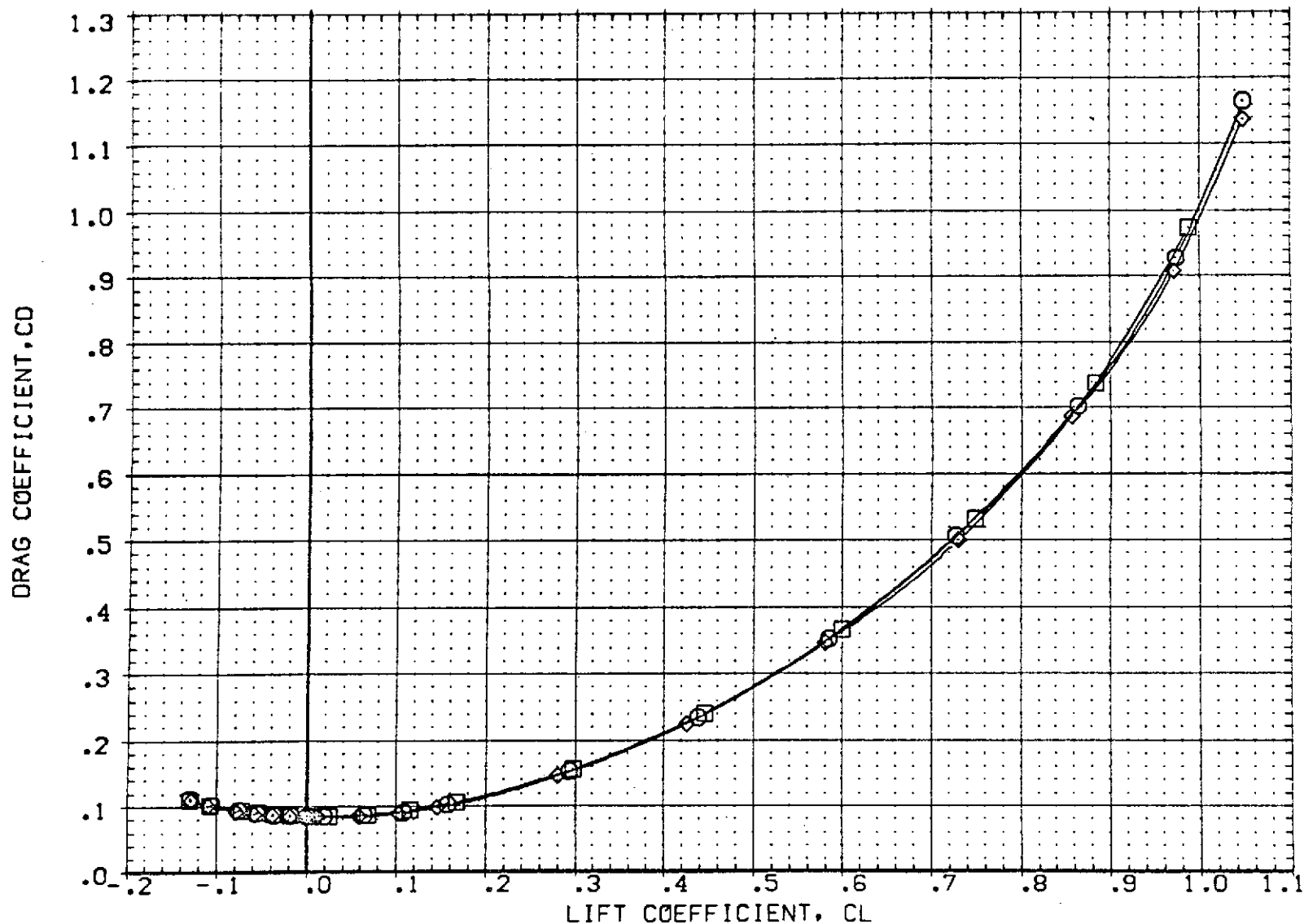


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(K02017)	◇ DATA NOT AVAILABLE
(K02018)	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
2.500	.000	54.920	.000	SREF	2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117 IN.
1.250	.000	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

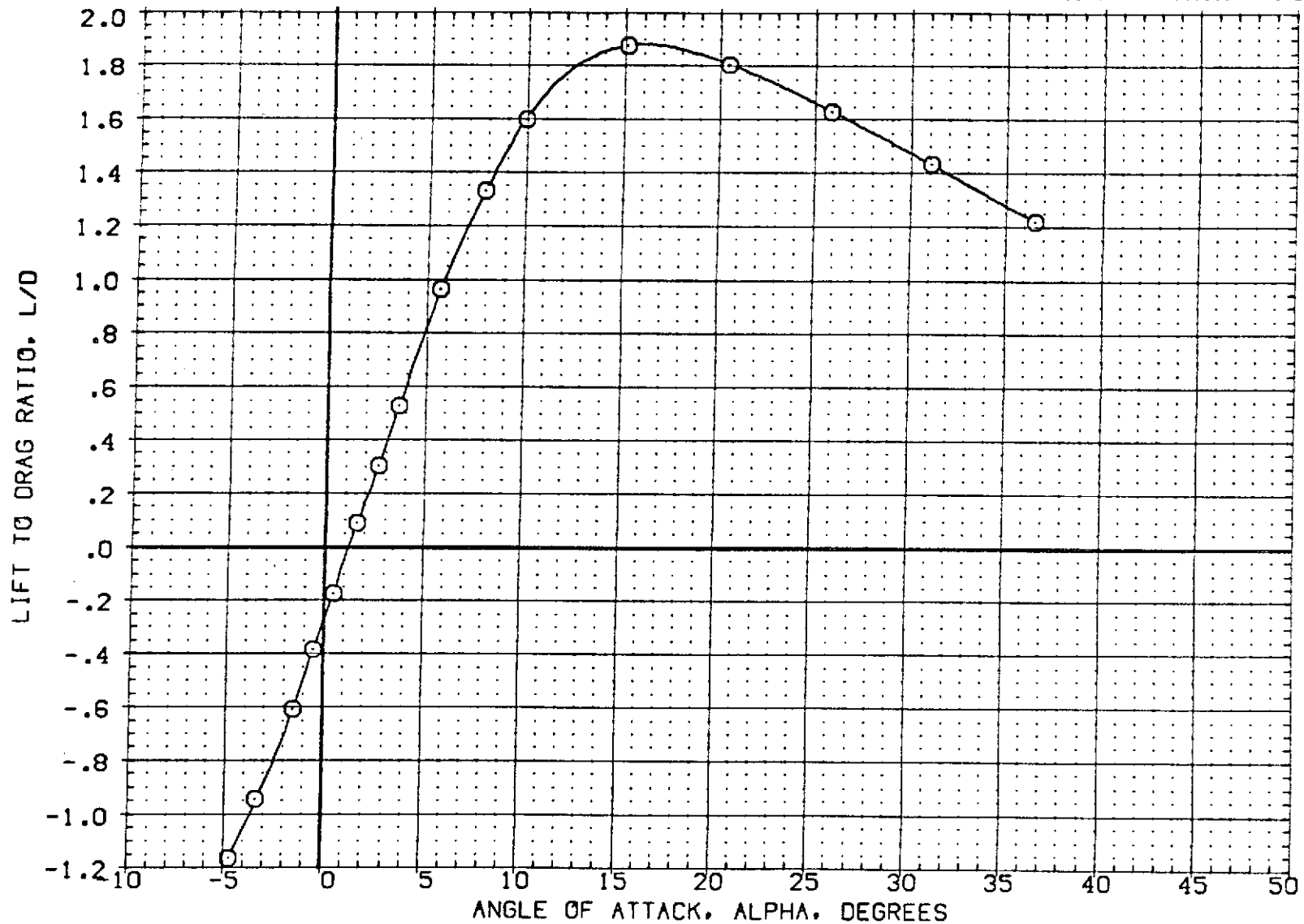


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 [KQ2016] ○ OA20C LRC UPVT 1057 -140A/B ORBITER  
 [KQ2017] □ DATA NOT AVAILABLE  
 [KQ2018] ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

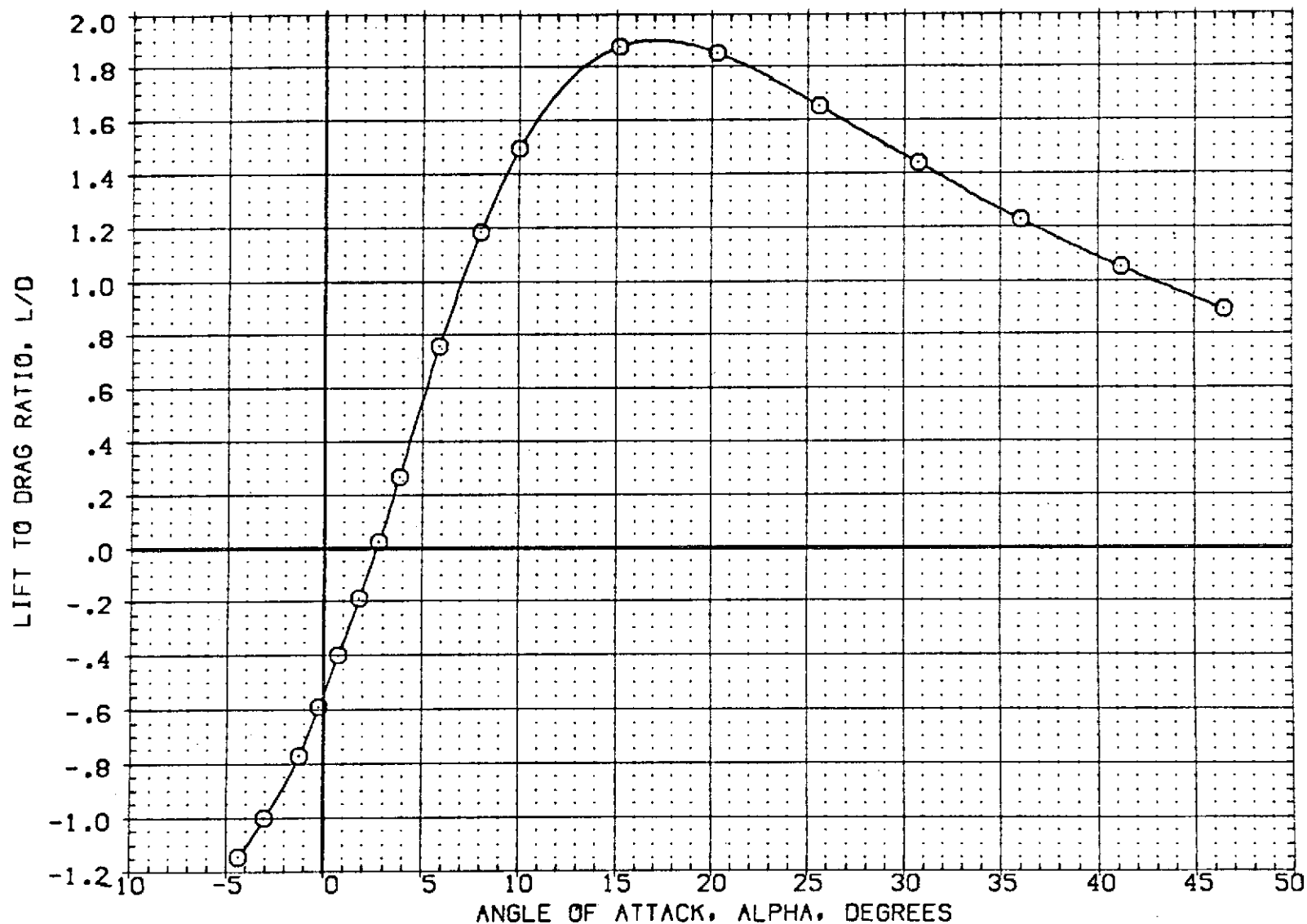


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02017)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02018)	OA20C LRC UPWT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

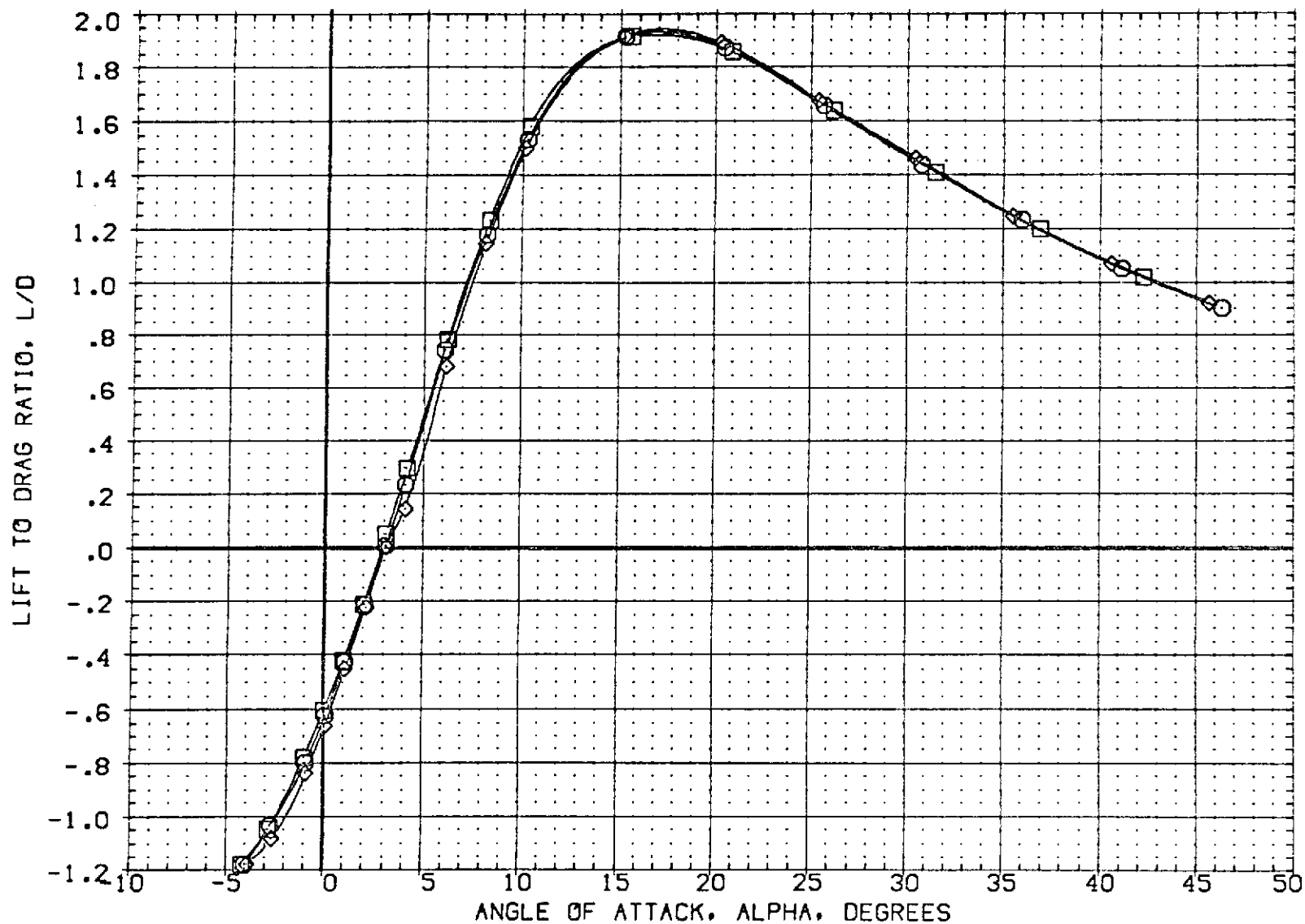


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2016)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2017)	□ DATA NOT AVAILABLE
(EQ2018)	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

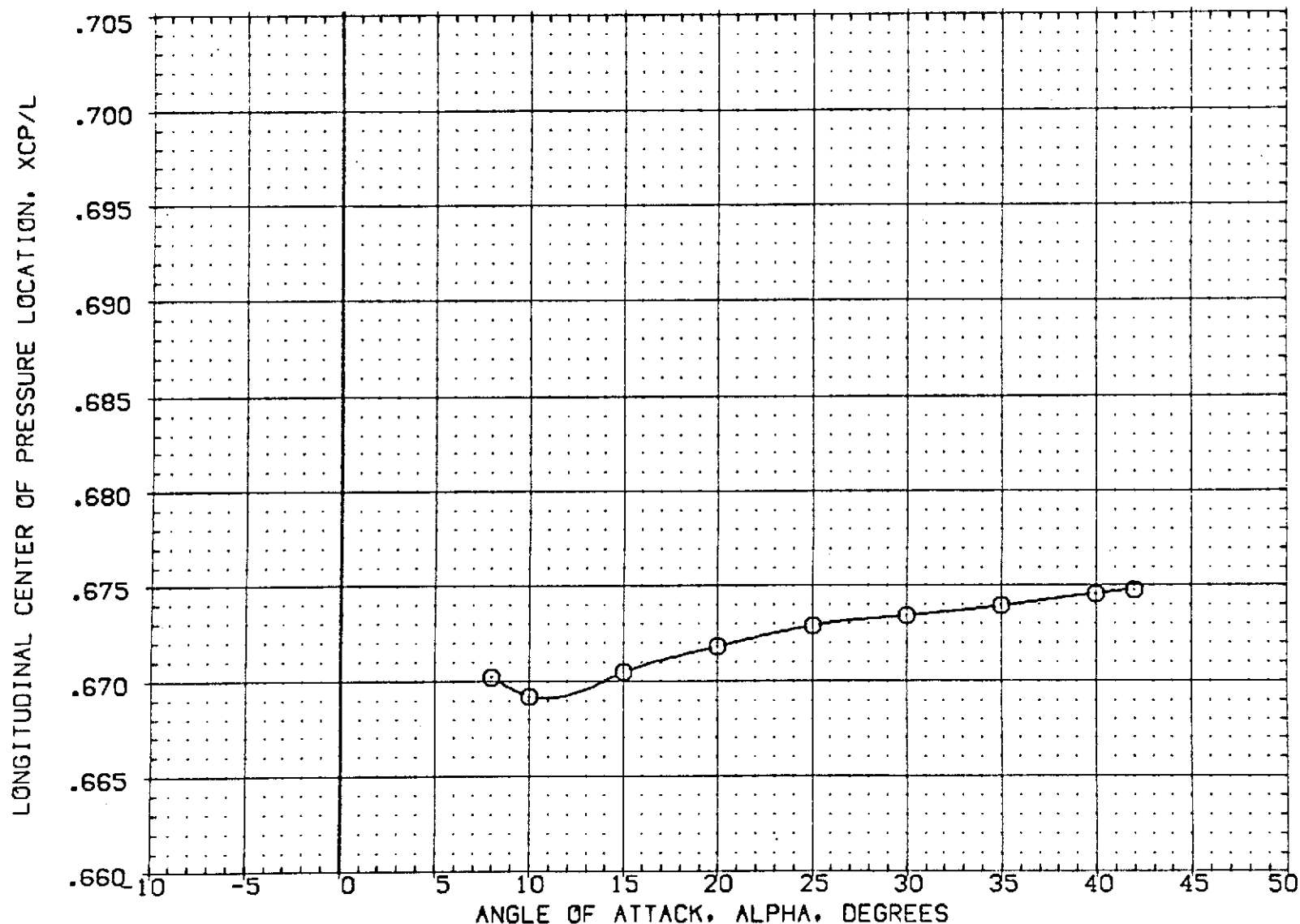


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2016)	○ 0A20C LRC UPVT 1057 -140A/B ORBITER
(EQ2017)	□ DATA NOT AVAILABLE
(EQ2018)	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

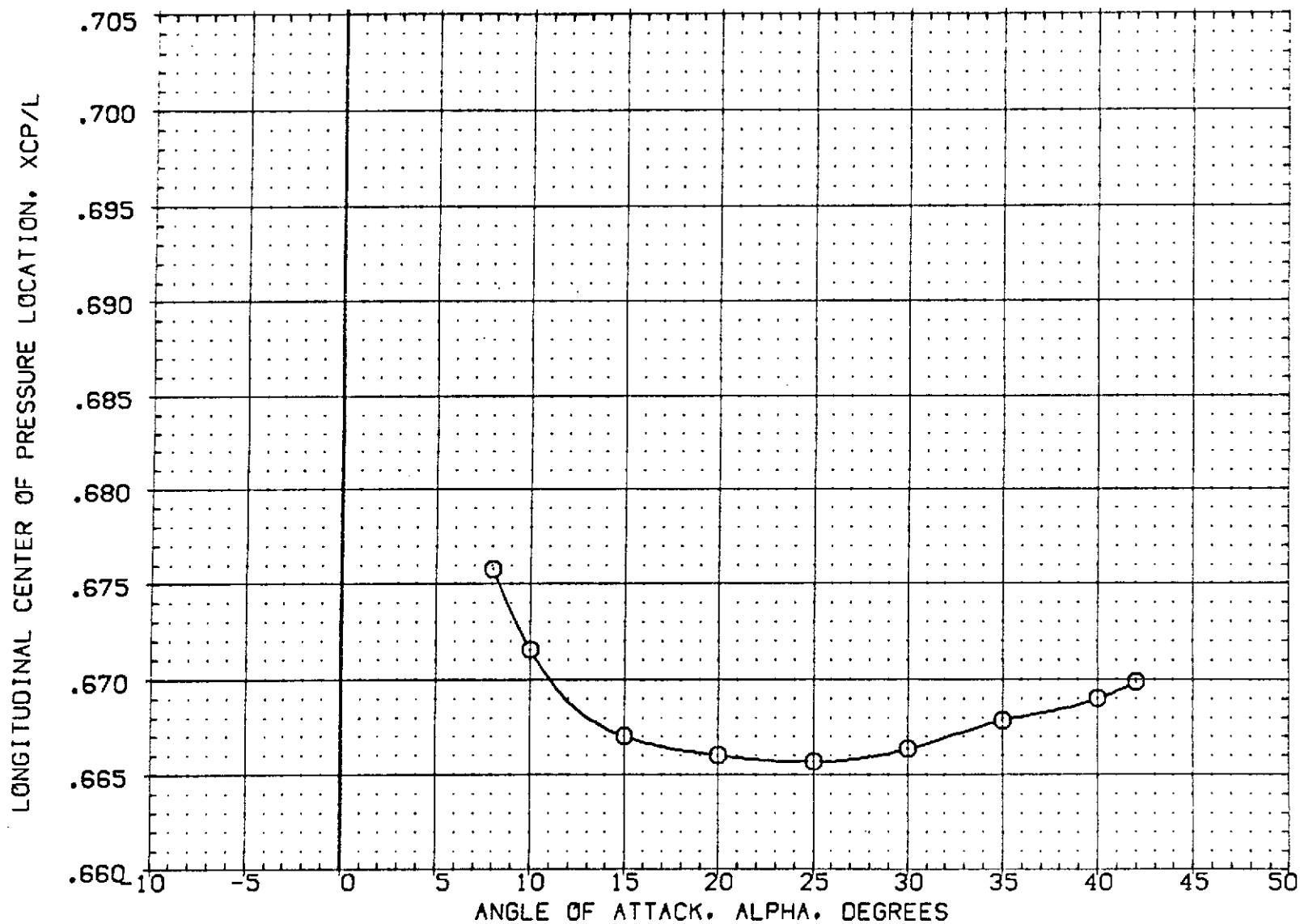


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2016)	DA20C LRC UPVT 1057 -140A/B DRBITER
(EQ2017)	DA20C LRC UPVT 1057 -140A/B DRBITER
(EQ2018)	DA20C LRC UPVT 1057 -140A/B DRBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRF 1076.4800 IN.
				YMRF .0000 IN.
				ZMRF 375.0000 IN.
				SCALE 1.0000 SCALE

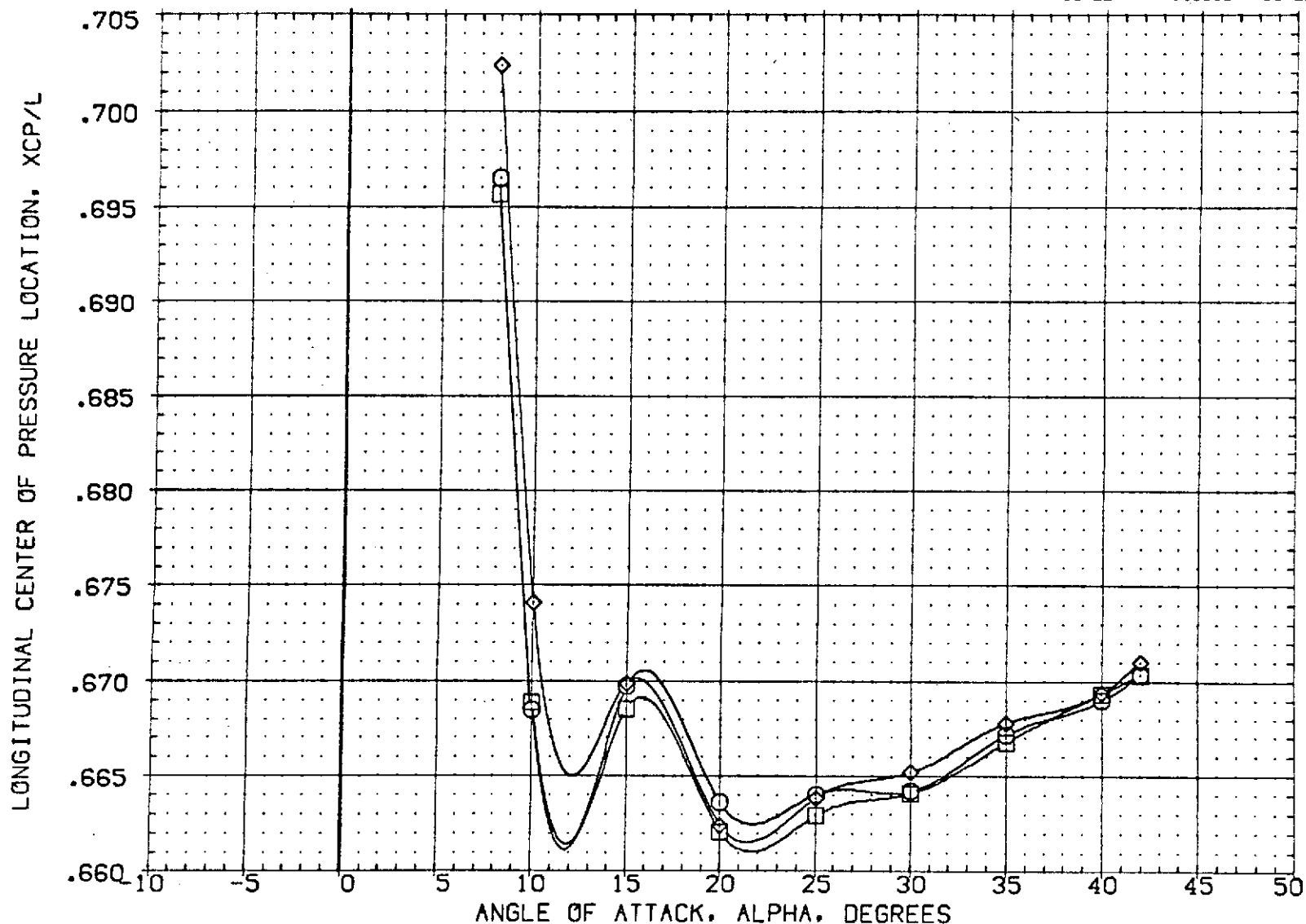


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (PQ2016) □ BA20C LRC UPWT 1057 -140A/B ORBITER  
 (PQ2017) □ DATA NOT AVAILABLE  
 (PQ2018) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
2.500	.000	54.920	.000	SREF	2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117 IN.
1.250	.000	54.920	.000	BREF	936.6816 IN.
				XMRP	1108.9500 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

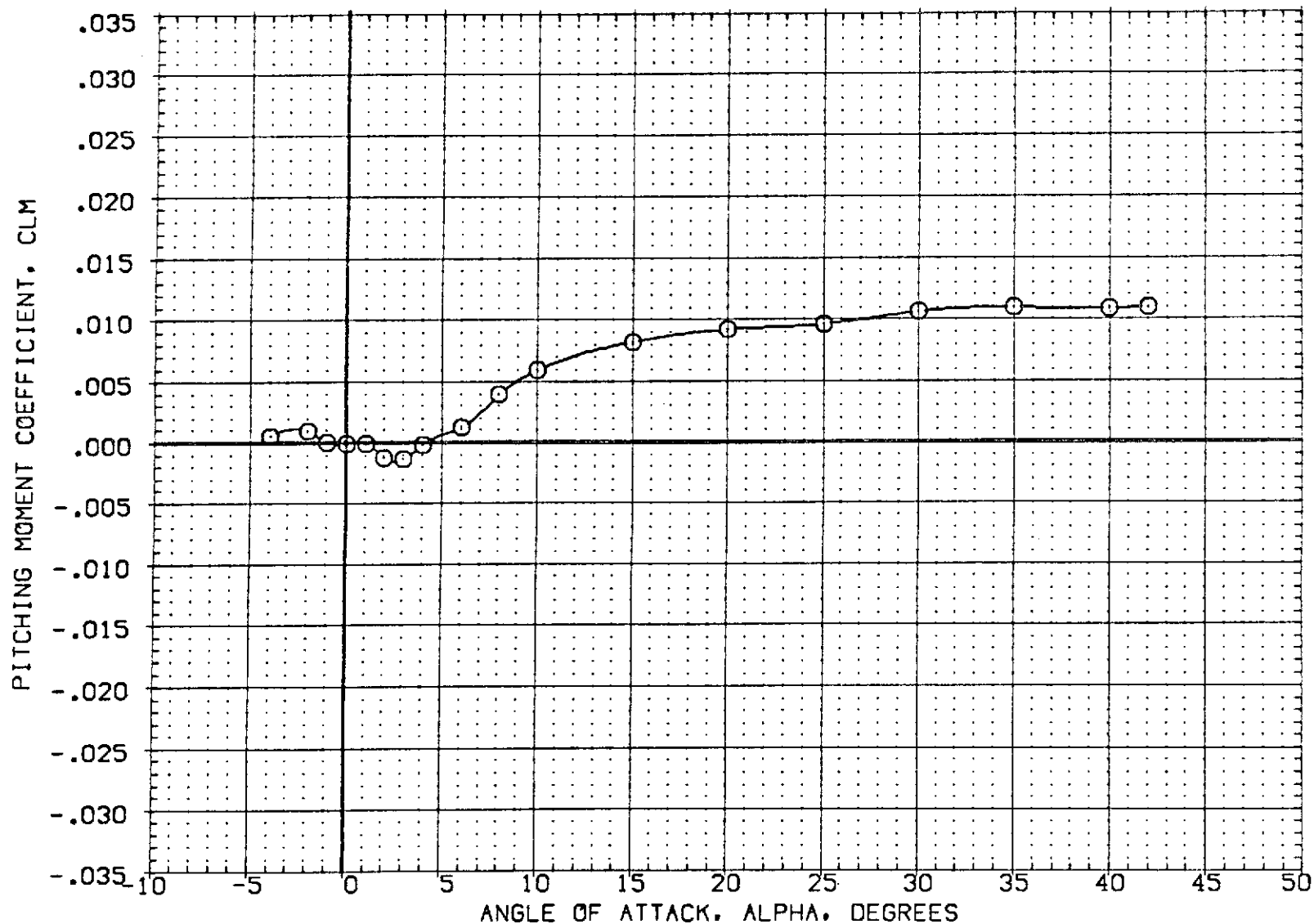


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(PQ2017)	DATA NOT AVAILABLE
(PQ2018)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
2.500	.000	54.920	.000	SREF	2690.0000	SQ.FT.
5.000	.000	54.920	.000	LREF	476.8117	IN.
1.250	.000	54.920	.000	BREF	936.6816	IN.
				XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

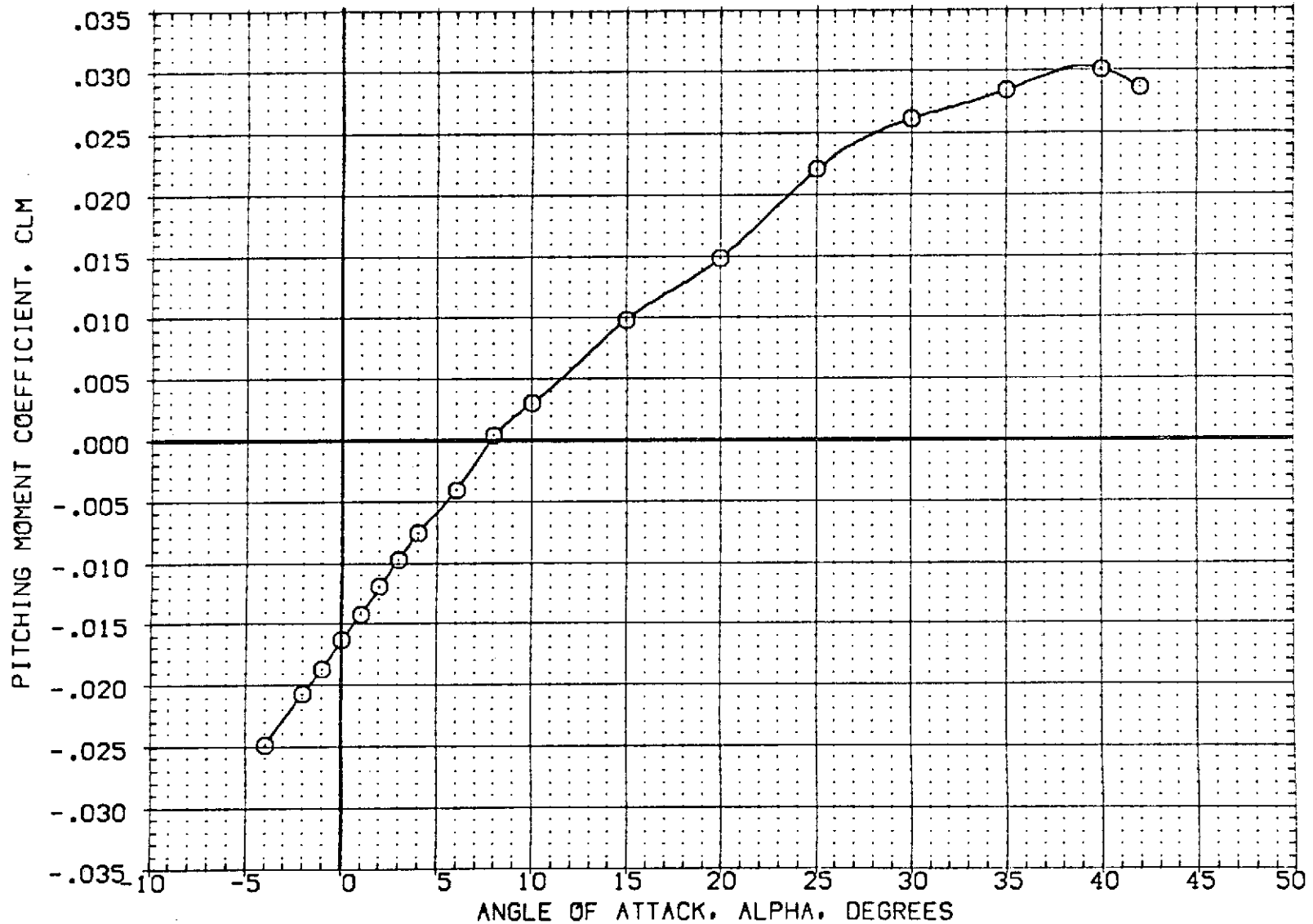


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(PQ2017)	OA20C LRC UPWT 1057 -140A/B ORBITER
(PQ2018)	OA20C LRC UPWT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
2.500	.000	54.920	.000	SREF 2690.0000 SQ.FT.
5.000	.000	54.920	.000	LREF 476.8117 IN.
1.250	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

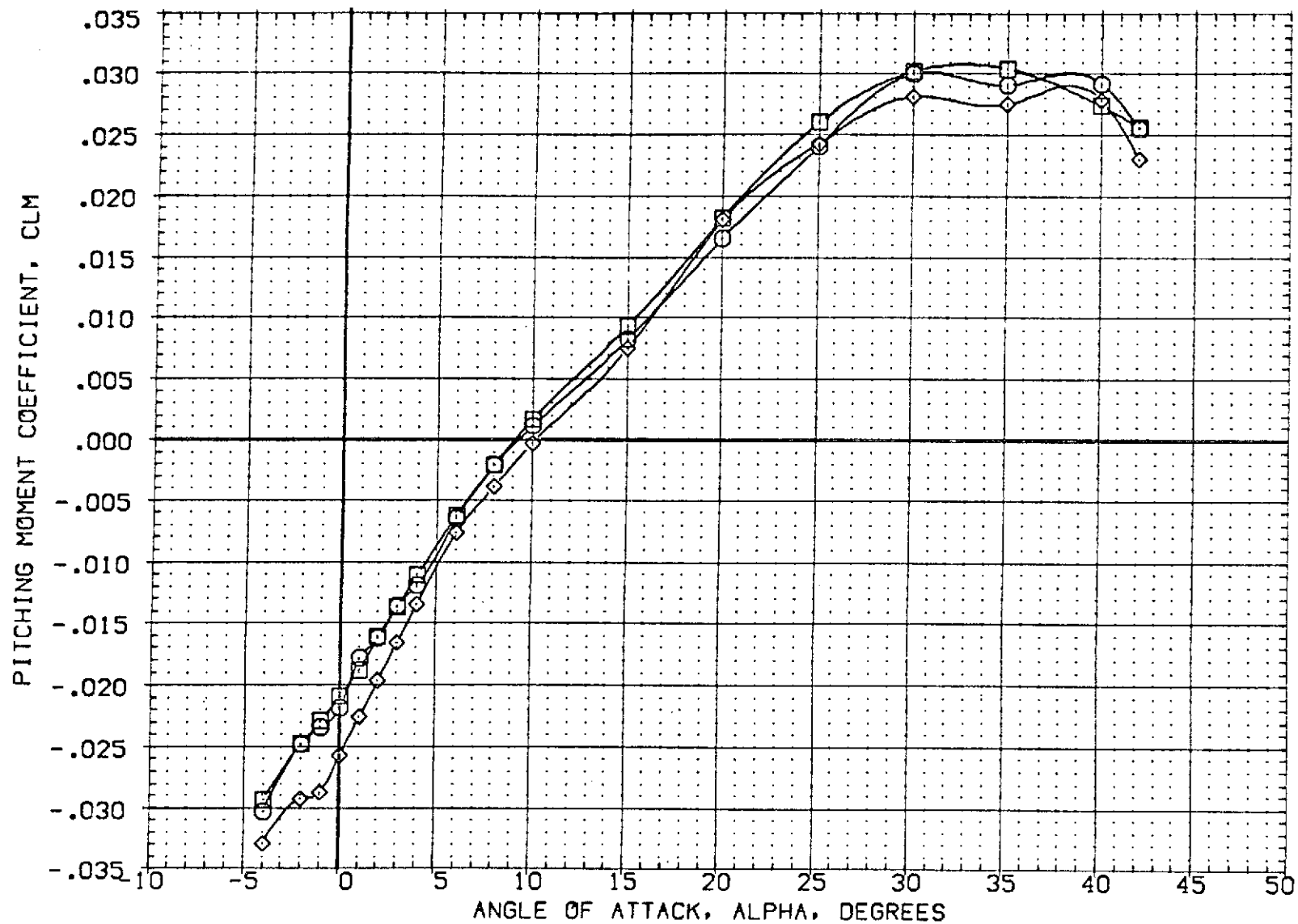


FIG 4 REYNOLDS NUMBER EFFECT (ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇ OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2011)	△ OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

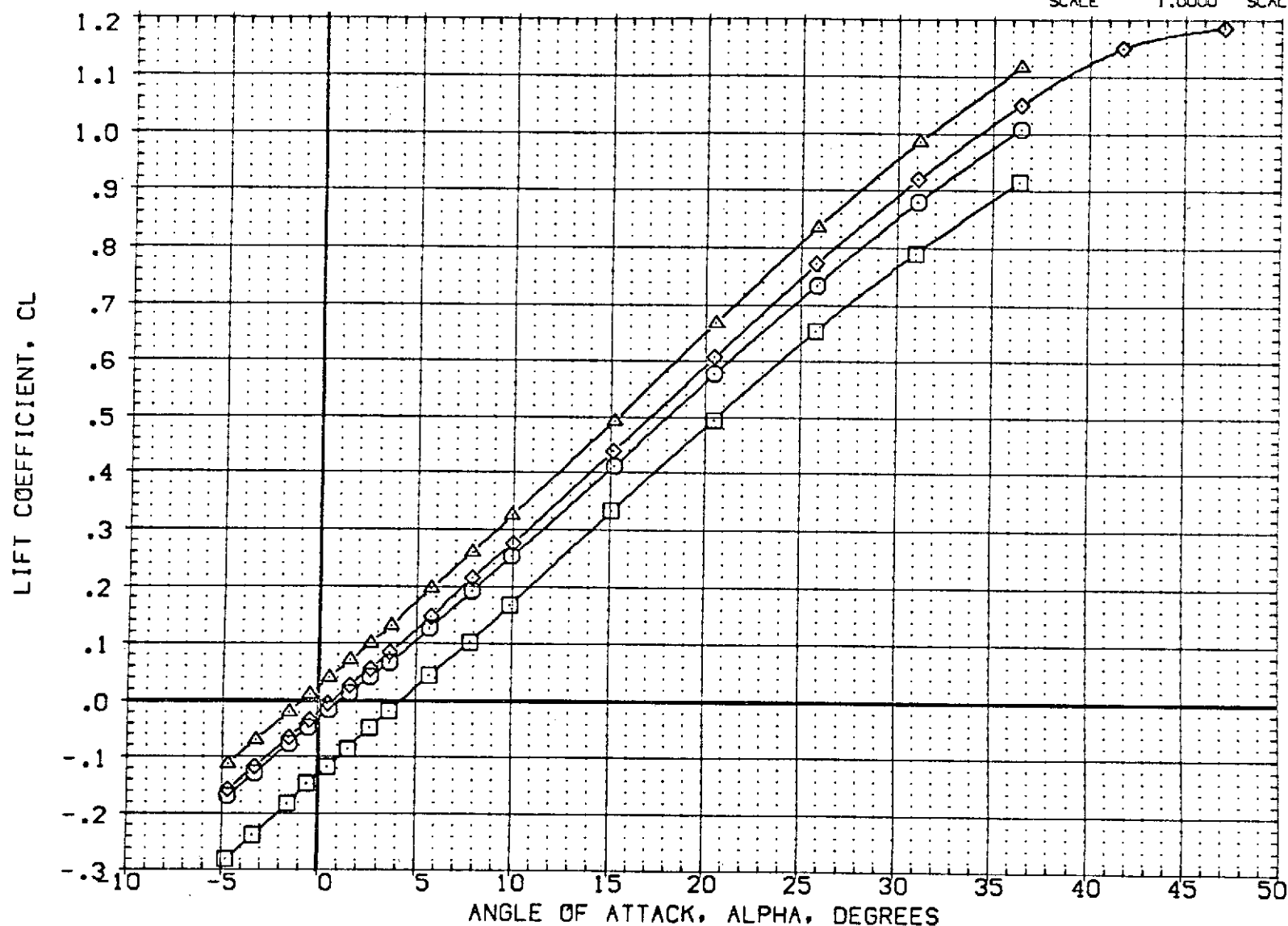


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	QA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	QA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	QA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	QA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

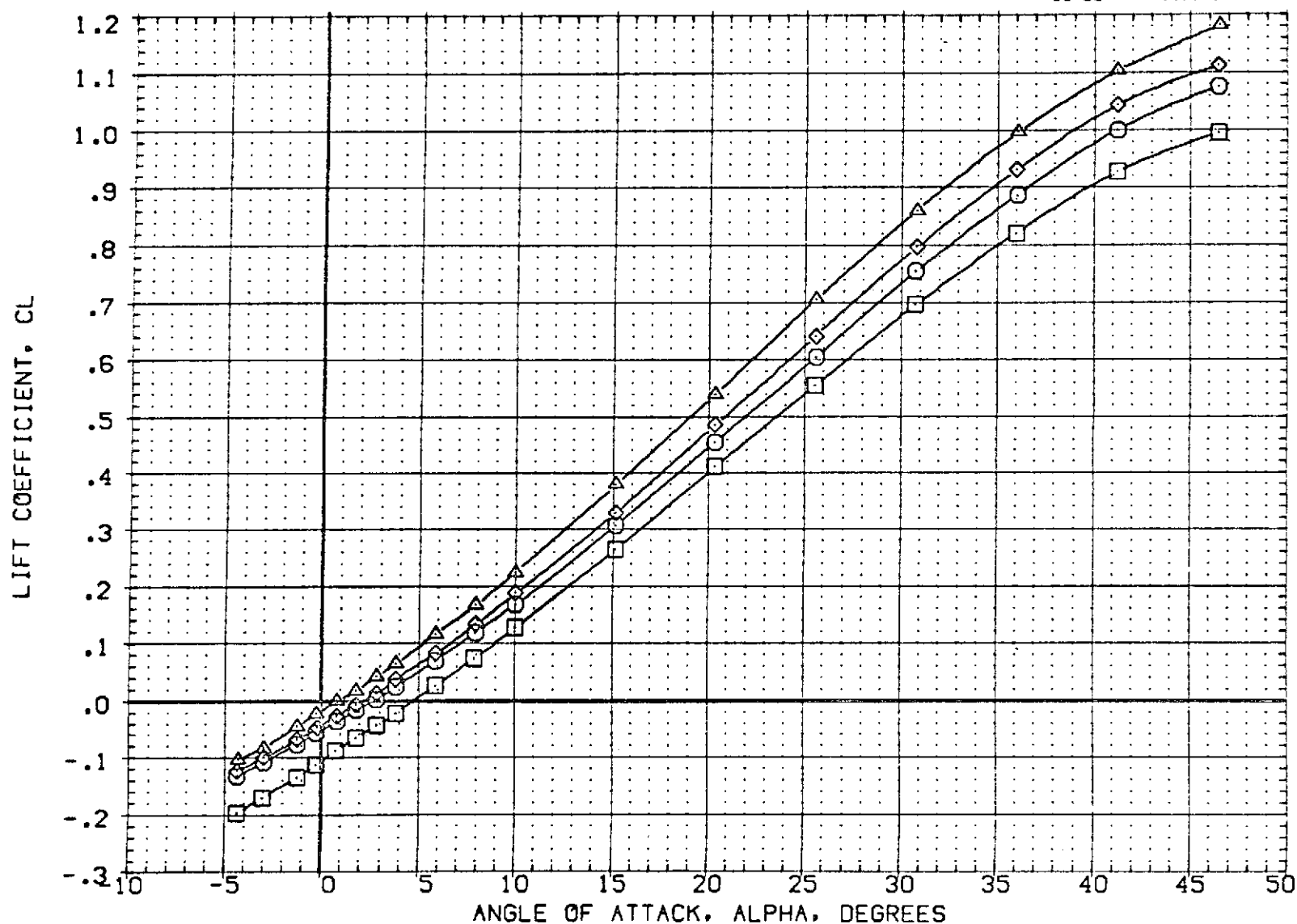


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02011)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

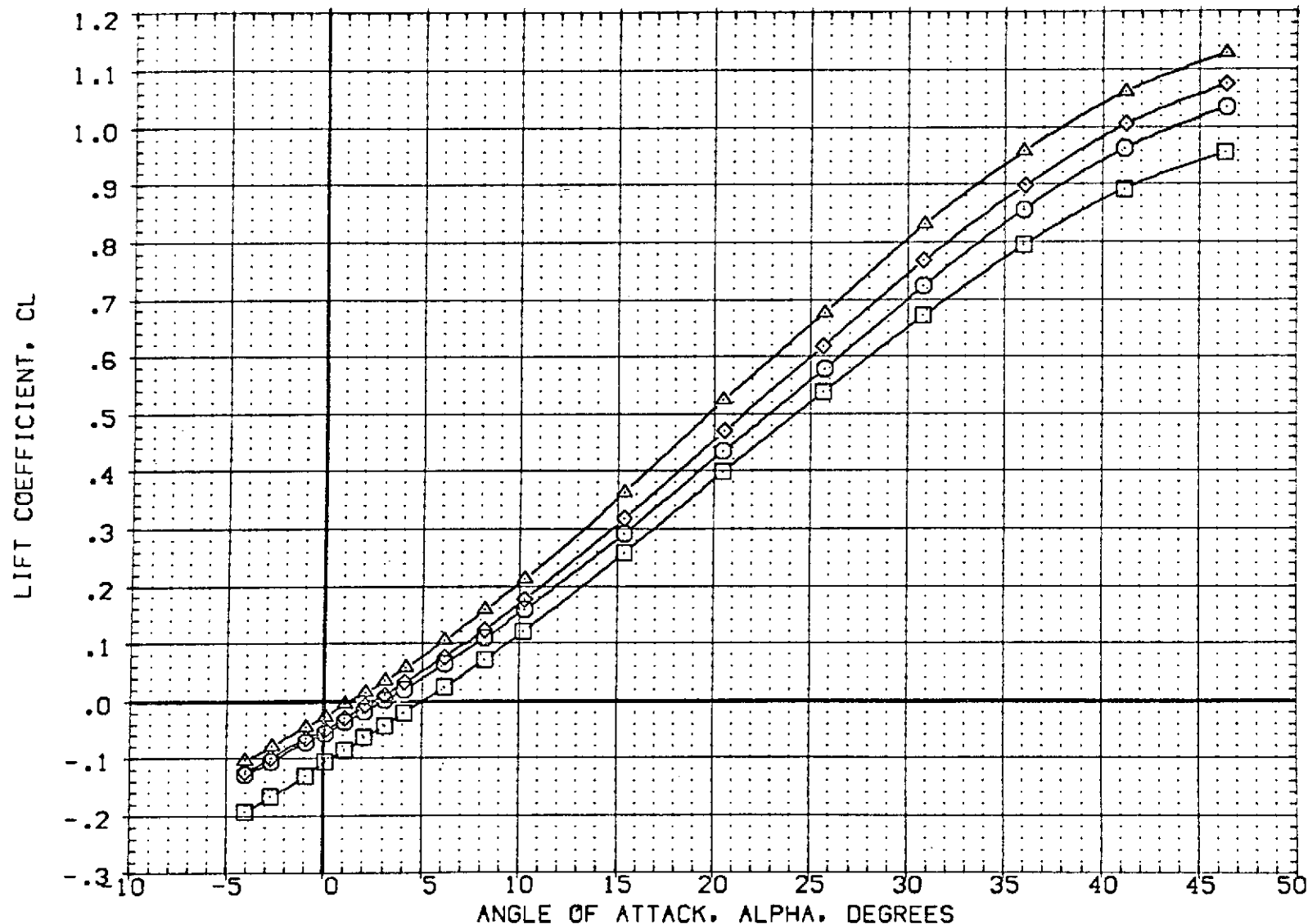


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
(K02015)	OA20C LRC UPVT 1057 -140A/B CR81TER	.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
(K02012)	OA20C LRC UPVT 1057 -140A/B CR81TER	-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
(K02010)	OA20C LRC UPVT 1057 -140A/B CR81TER	.000	16.300	54.920	.000	BREF	936.6816	IN.
(K02011)	OA20C LRC UPVT 1057 -140A/B CR81TER	15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
						YMRP	.0000	IN.
						ZMRP	375.0000	IN.
						SCALE	1.0000	SCALE

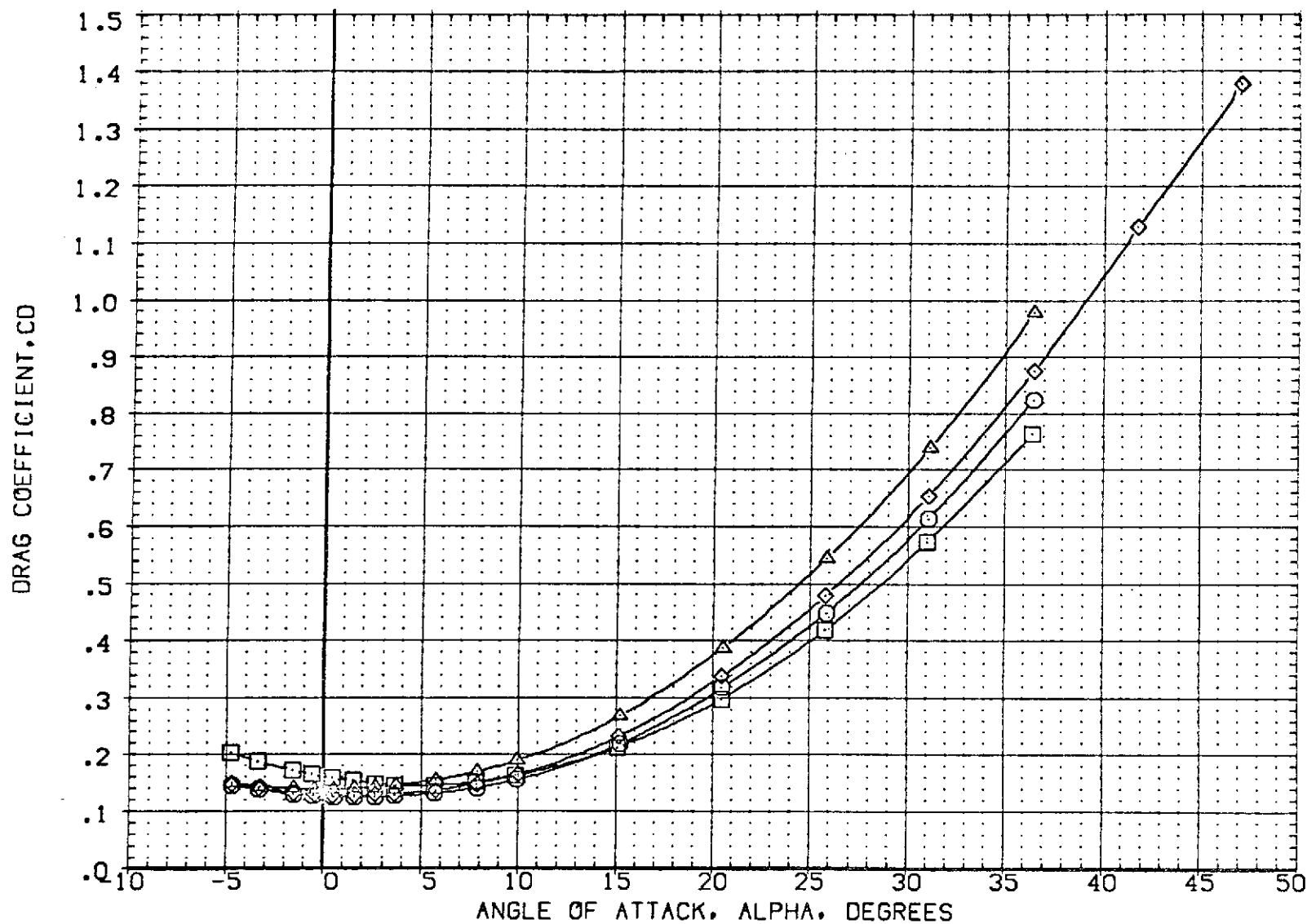


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2011)	△	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

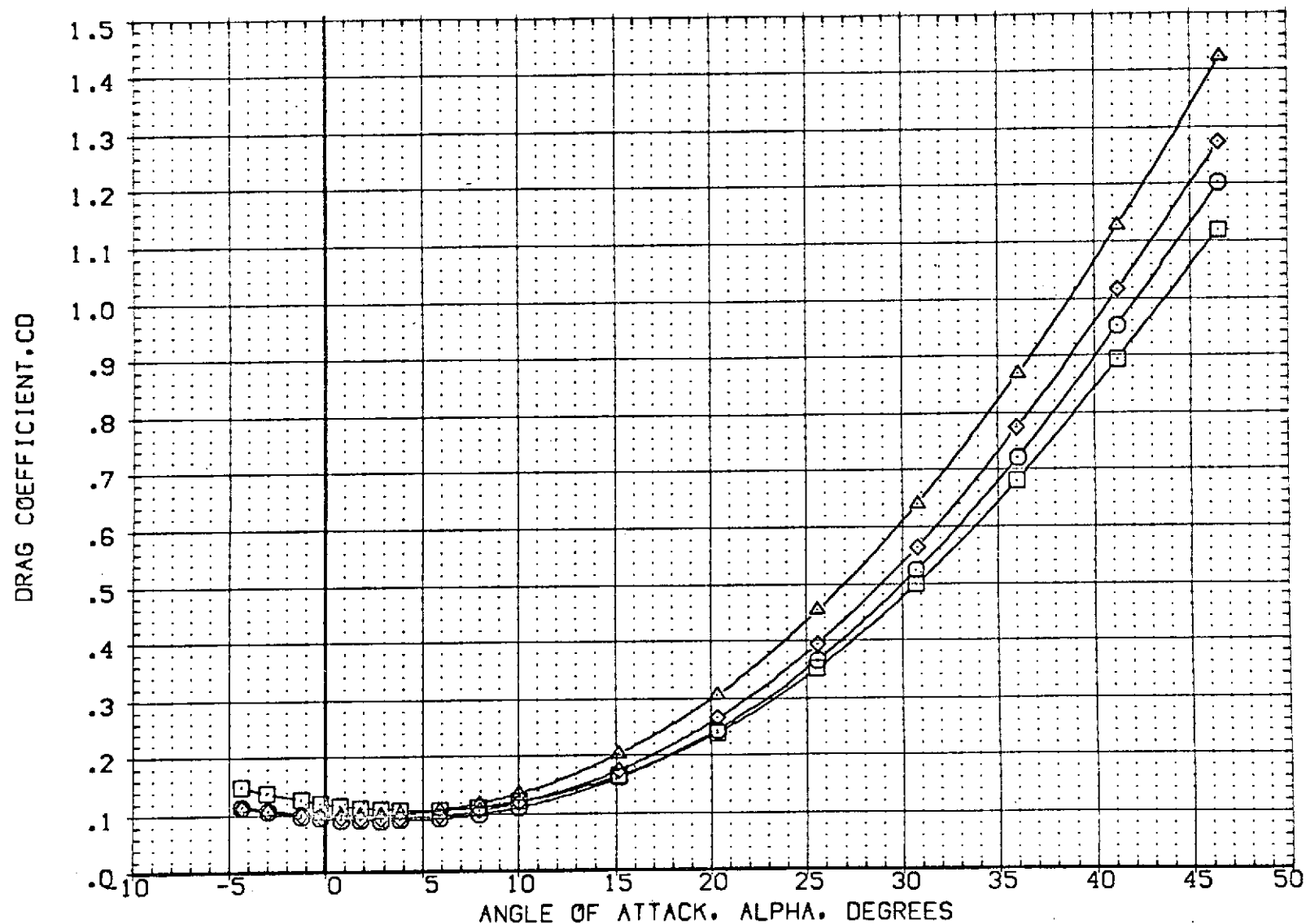


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02011)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRF 1076.4800 IN.
				YMRF .0000 IN.
				ZMRF 375.0000 IN.
				SCALE 1.0000 SCALE

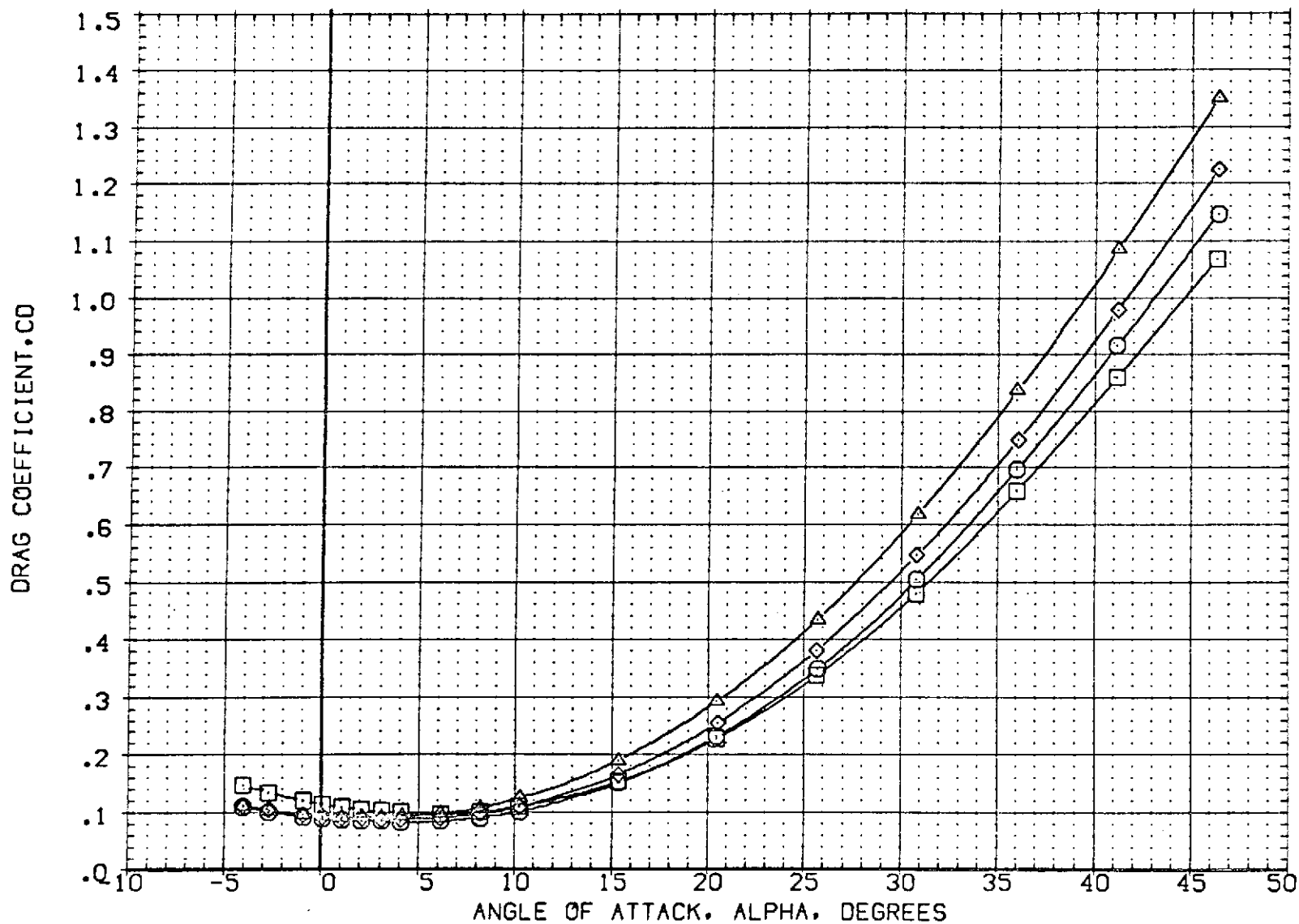


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2011)	△	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

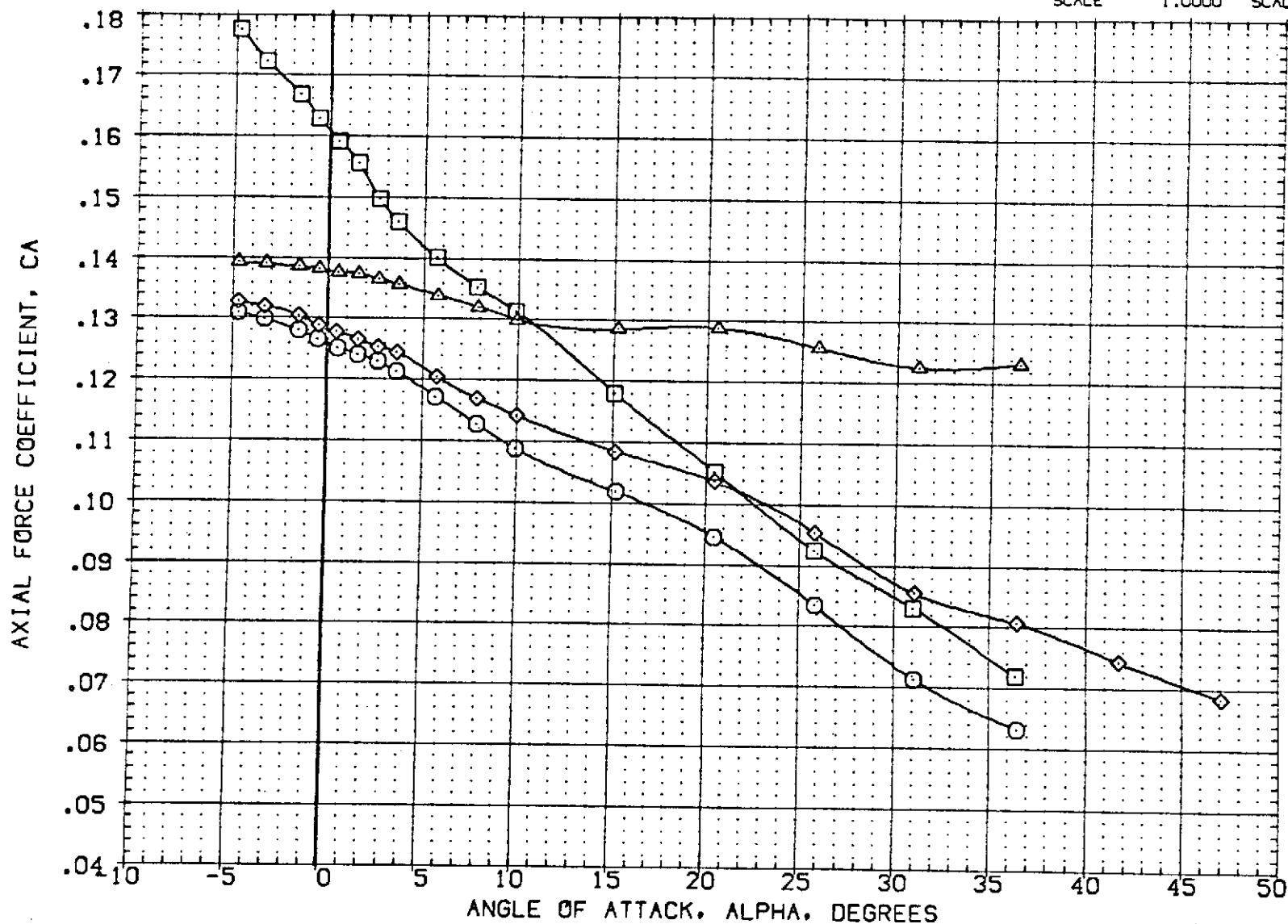


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

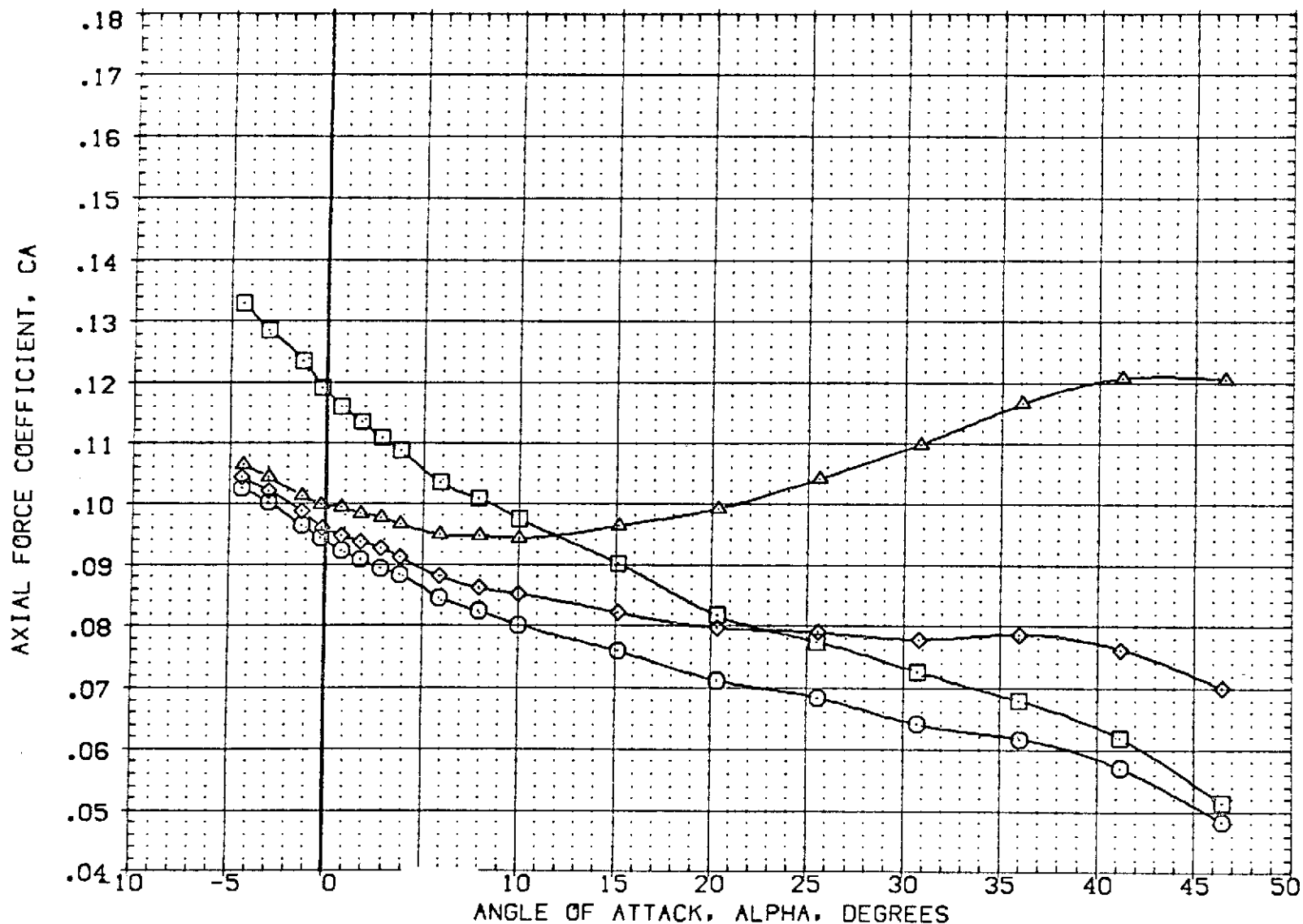


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	DA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	DA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	DA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	DA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

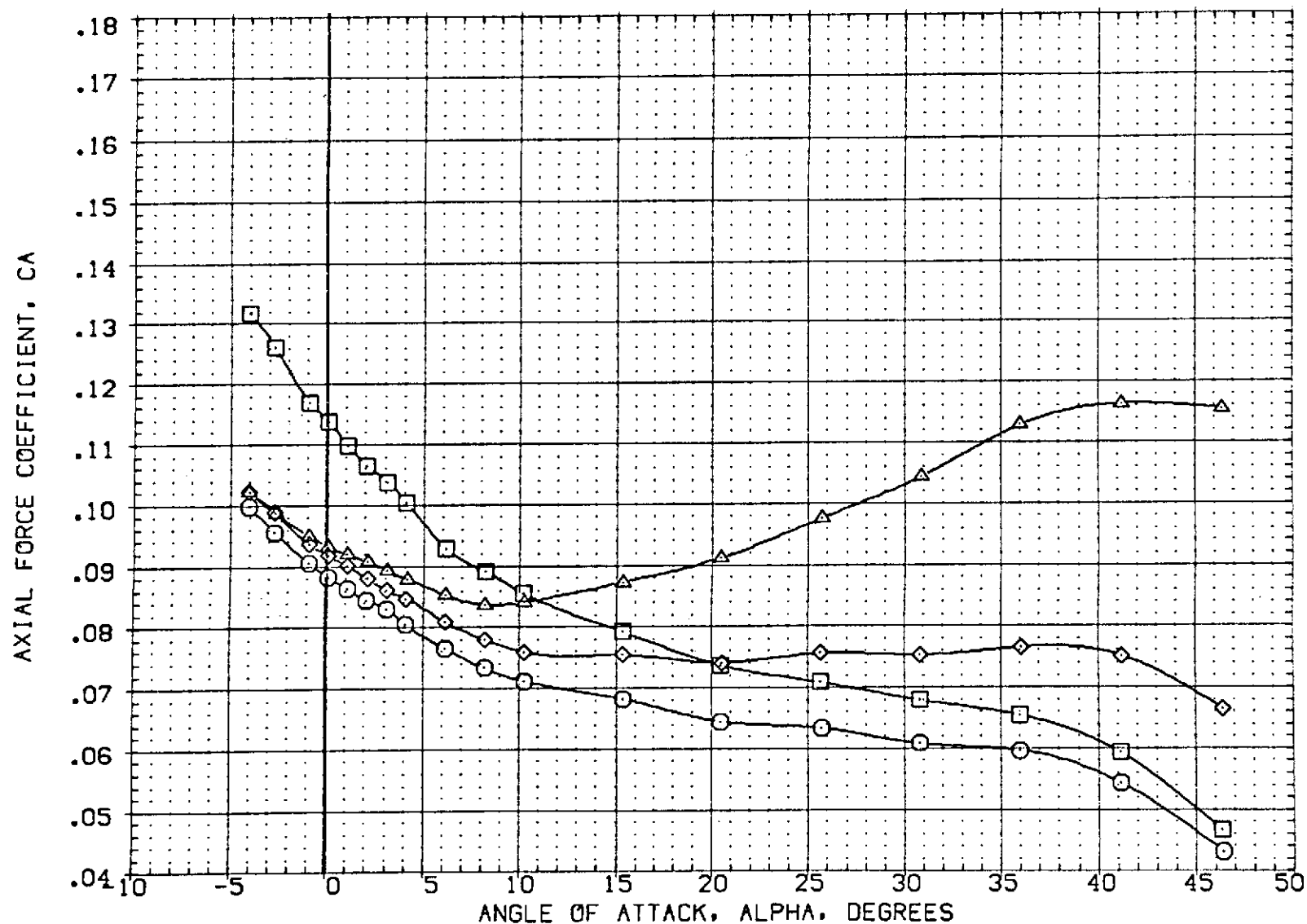


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

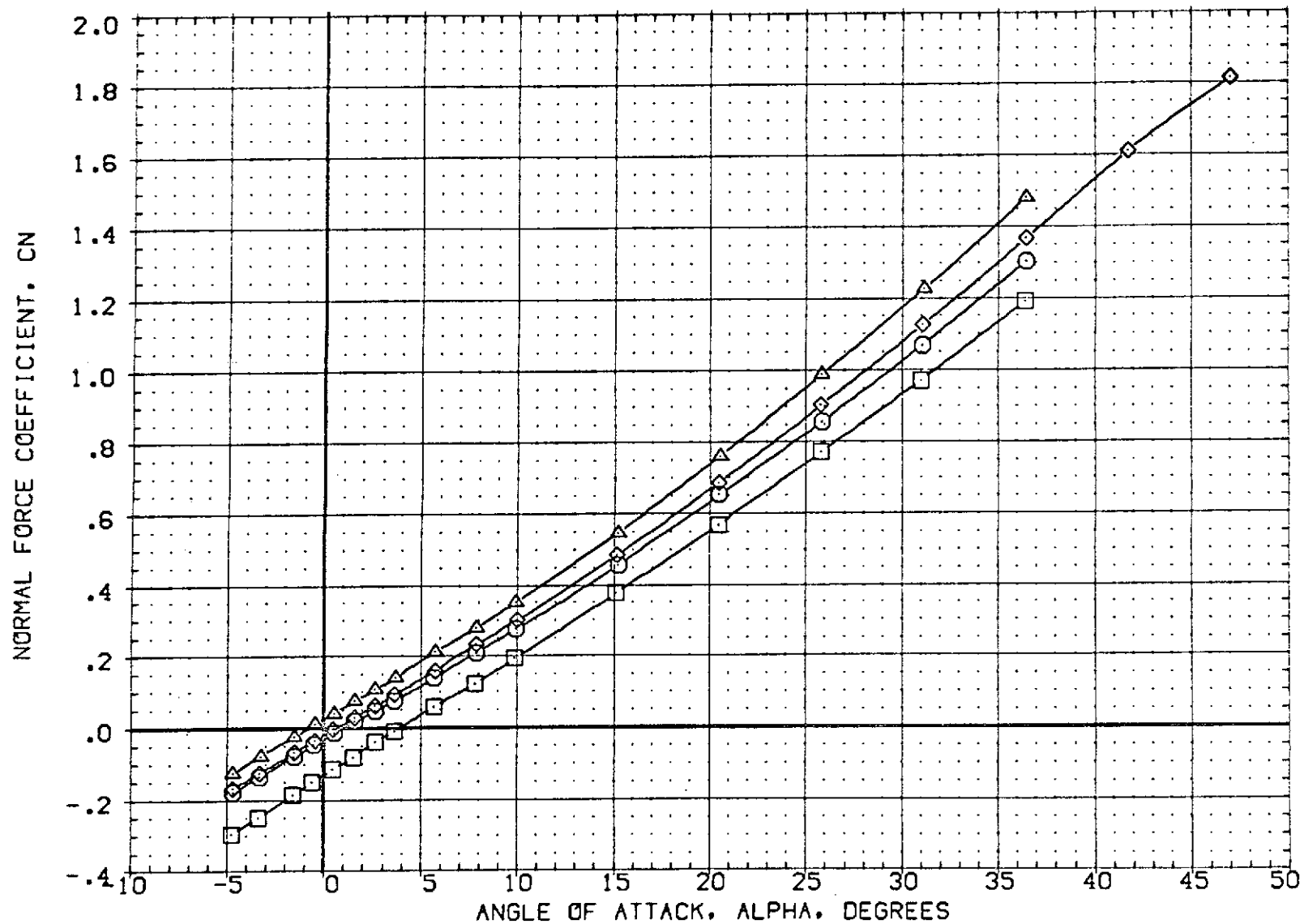


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPDBRK	AILEON	REFERENCE INFORMATION	
(KQ2015)	○	0A20C LRC UPWT 1057 -140A/B ORBITER	.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
(KQ2012)	□	0A20C LRC UPWT 1057 -140A/B ORBITER	-40.000	-11.700	54.920	.000	LREF	476.8117 IN.
(KQ2010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER	.000	16.300	54.920	.000	BREF	936.6816 IN.
(KQ2011)	△	0A20C LRC UPWT 1057 -140A/B ORBITER	15.000	16.300	54.920	.000	XMRP	1076.4800 IN.
							YMRP	.0000 IN.
							ZMRP	375.0000 IN.
							SCALE	1.0000 SCALE

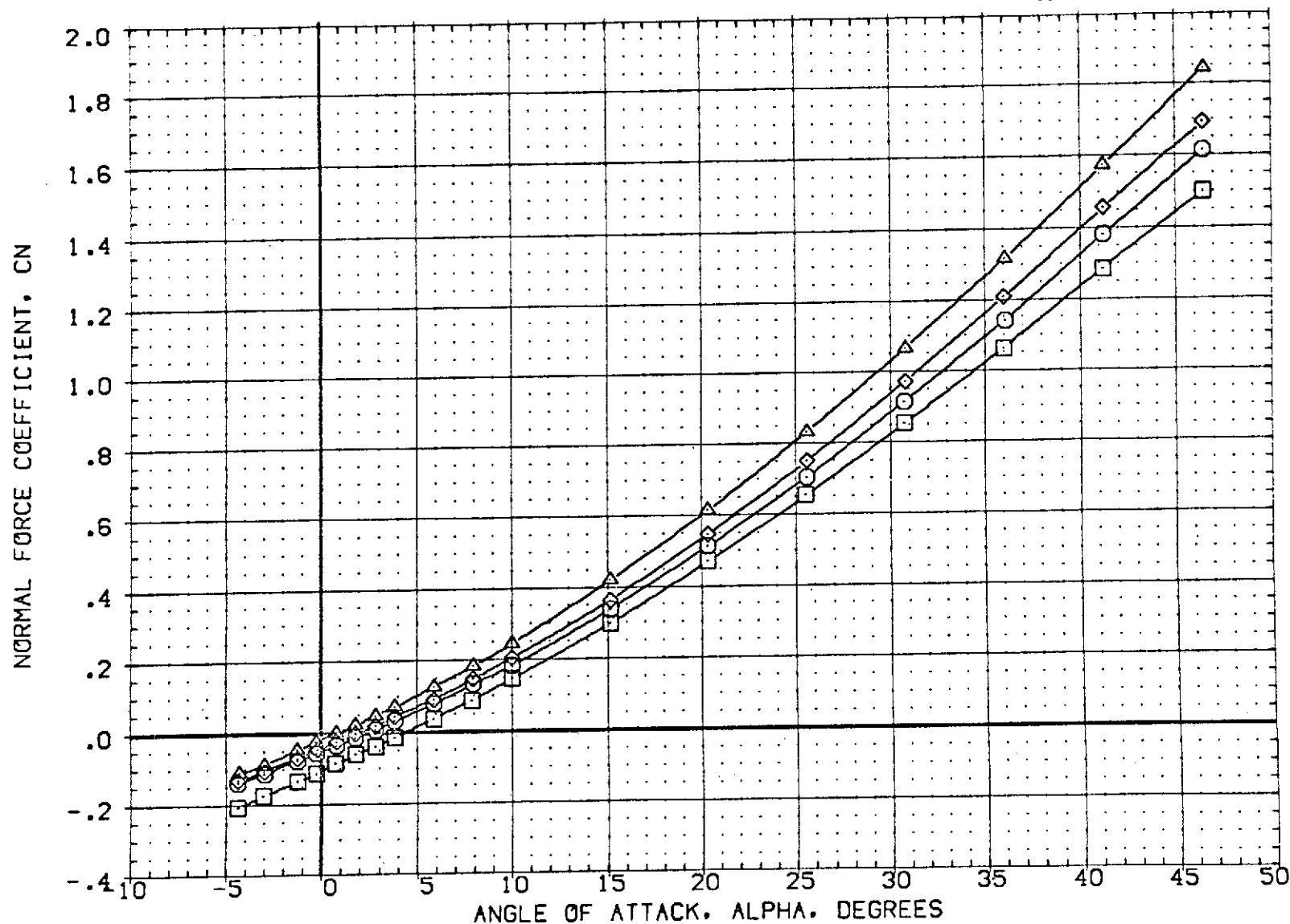


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

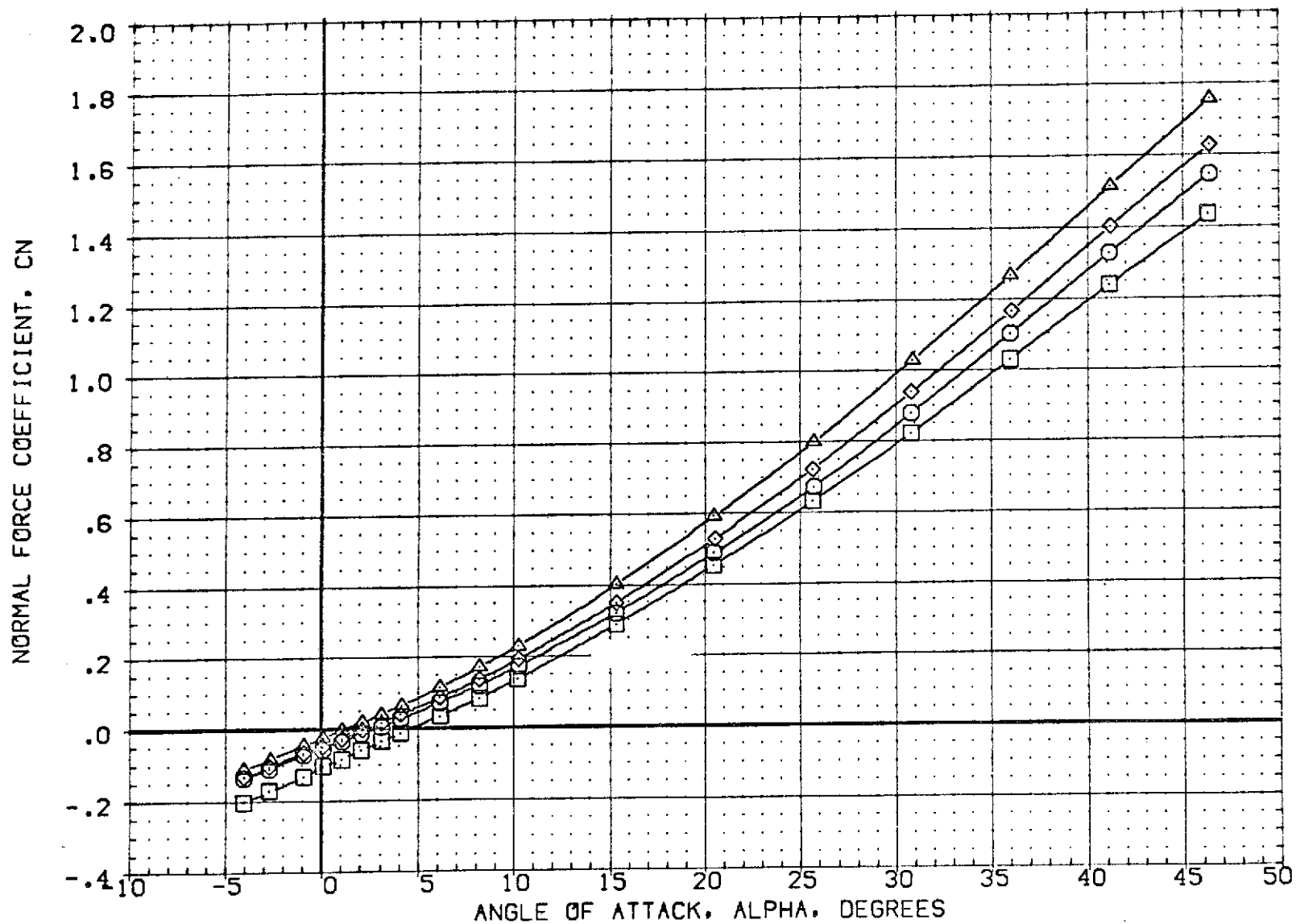


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02011)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
15.000	16.300	54.920	.000	XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

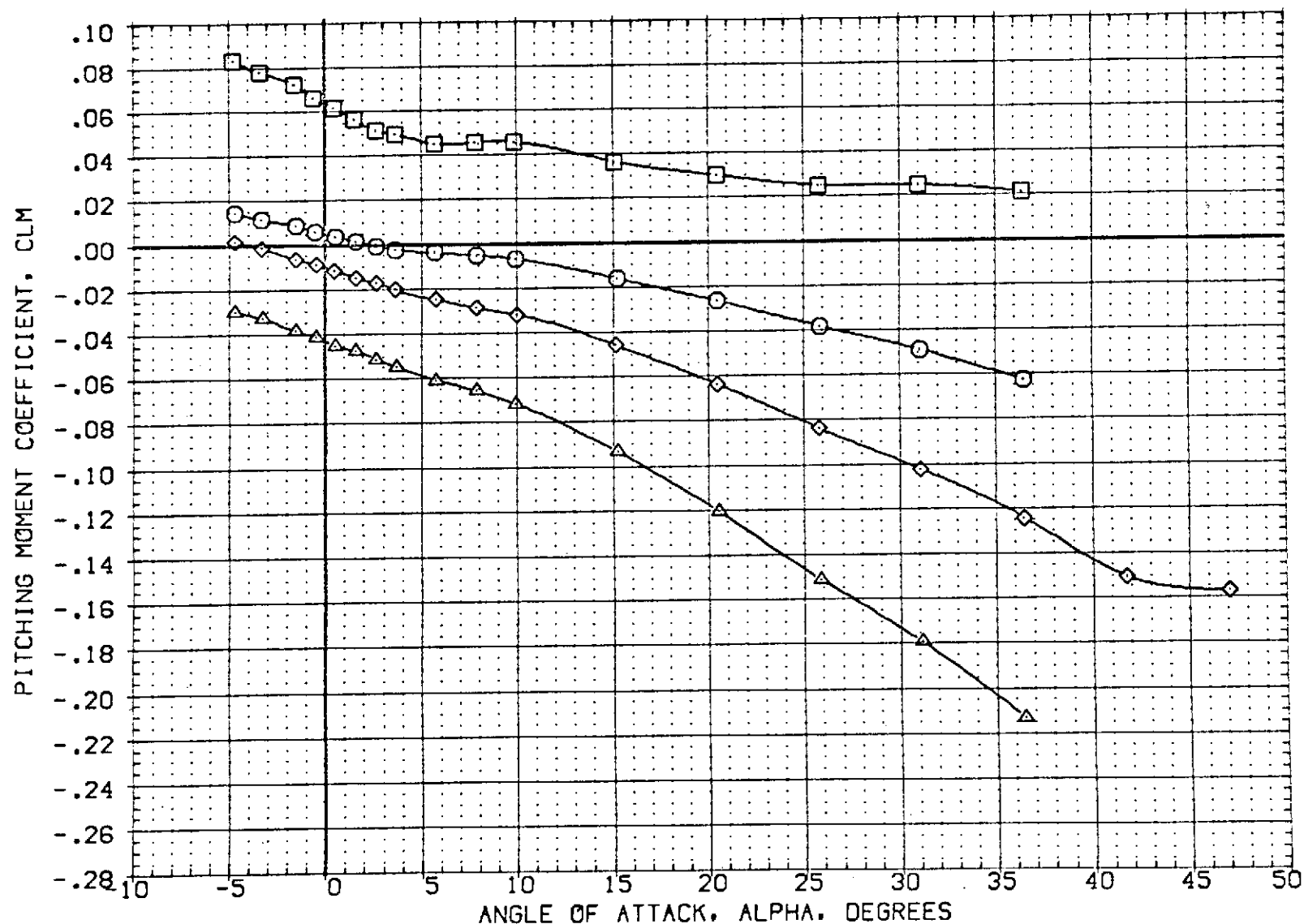


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02011)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

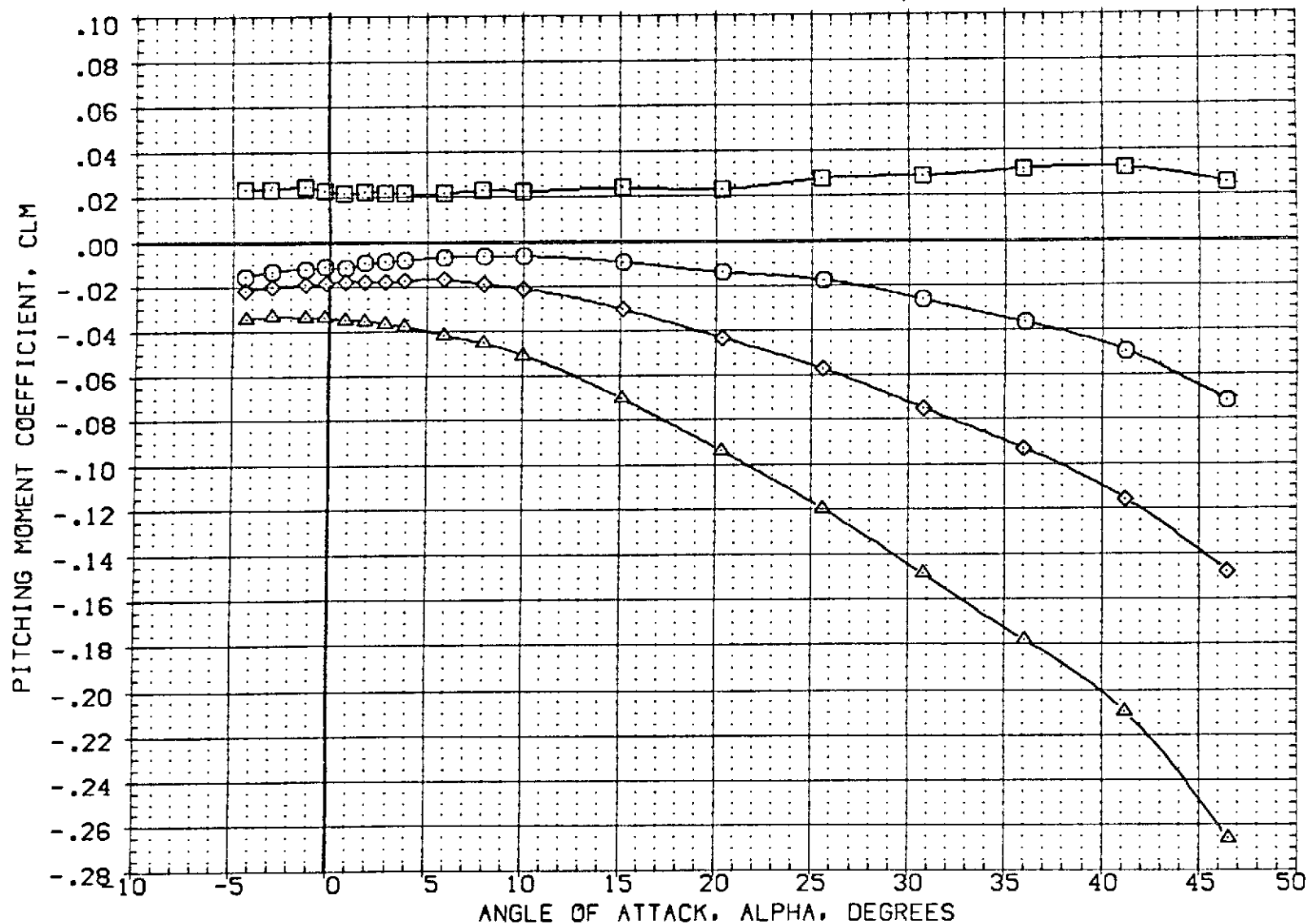


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02012)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02011)	△	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDRBK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

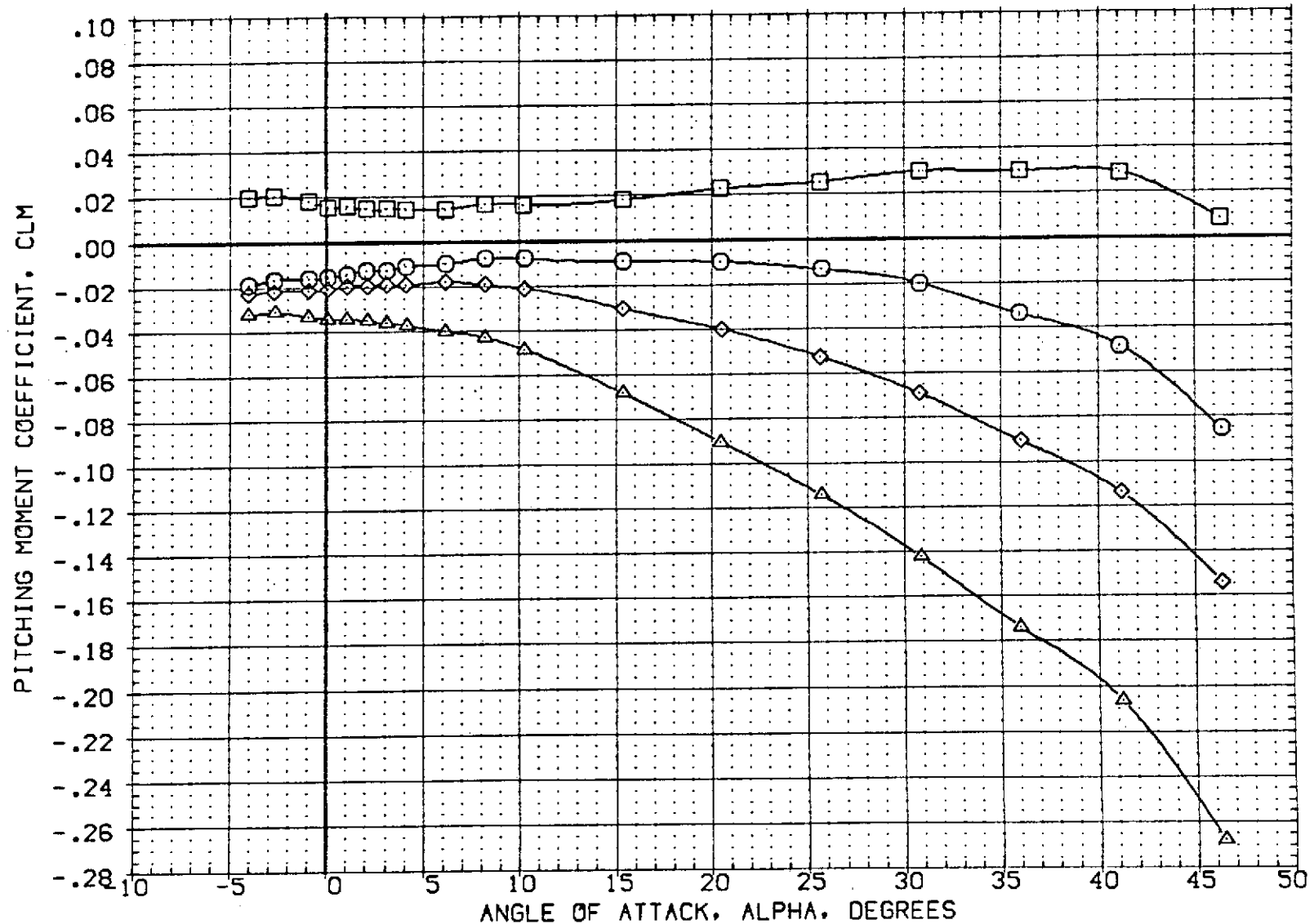


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
[KQ2015]	○	0A20C LRC UPVT 1057 -140A/B ORBITER
[KQ2012]	□	0A20C LRC UPVT 1057 -140A/B ORBITER
[KQ2010]	◇	0A20C LRC UPVT 1057 -140A/B ORBITER
[KQ2011]	△	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

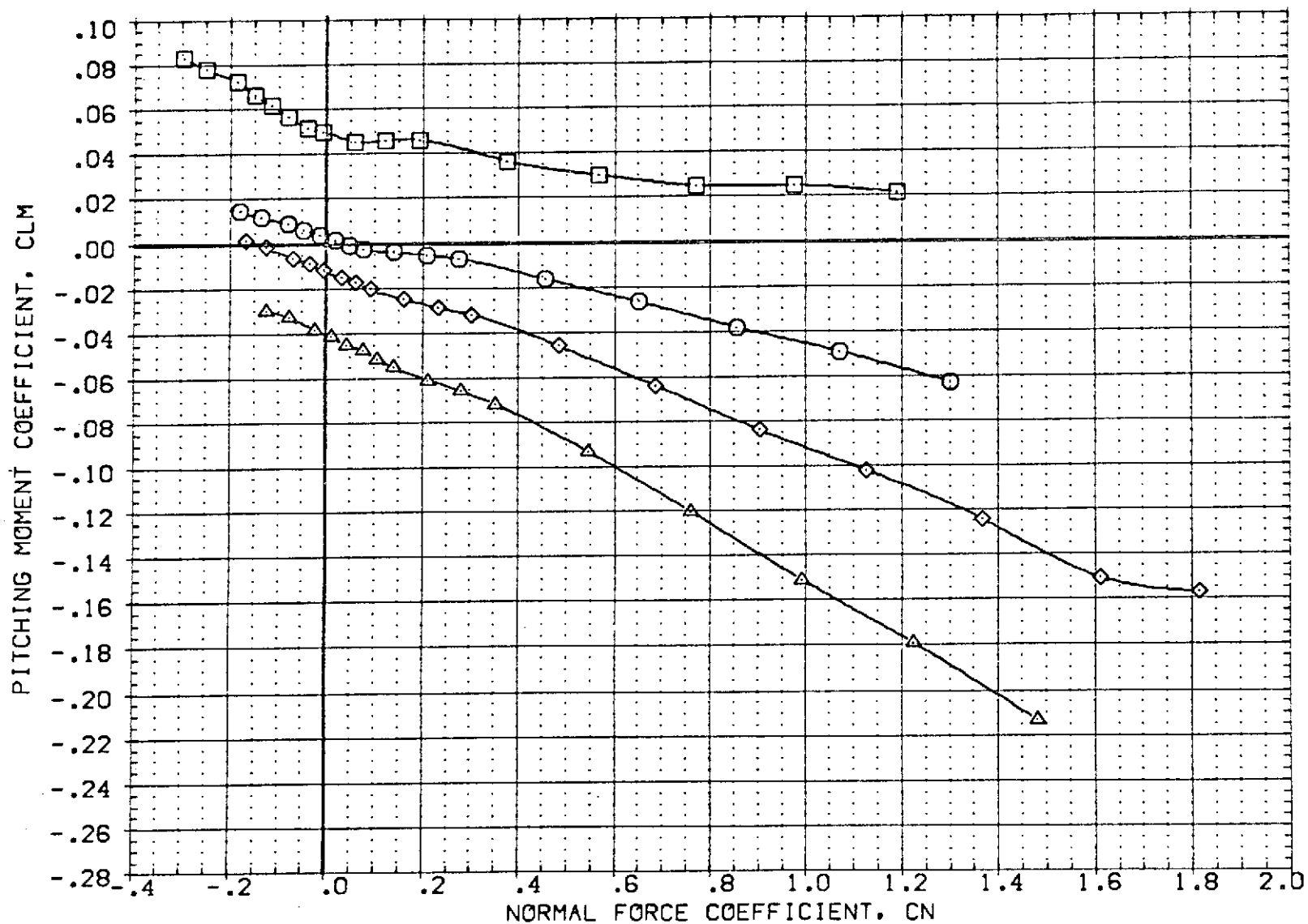


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	○	0A20C LRC UPVT 1057 -140A/B DRBITER
(K02012)	□	0A20C LRC UPVT 1057 -140A/B DRBITER
(K02010)	◇	0A20C LRC UPVT 1057 -140A/B DRBITER
(K02011)	△	0A20C LRC UPVT 1057 -140A/B DRBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

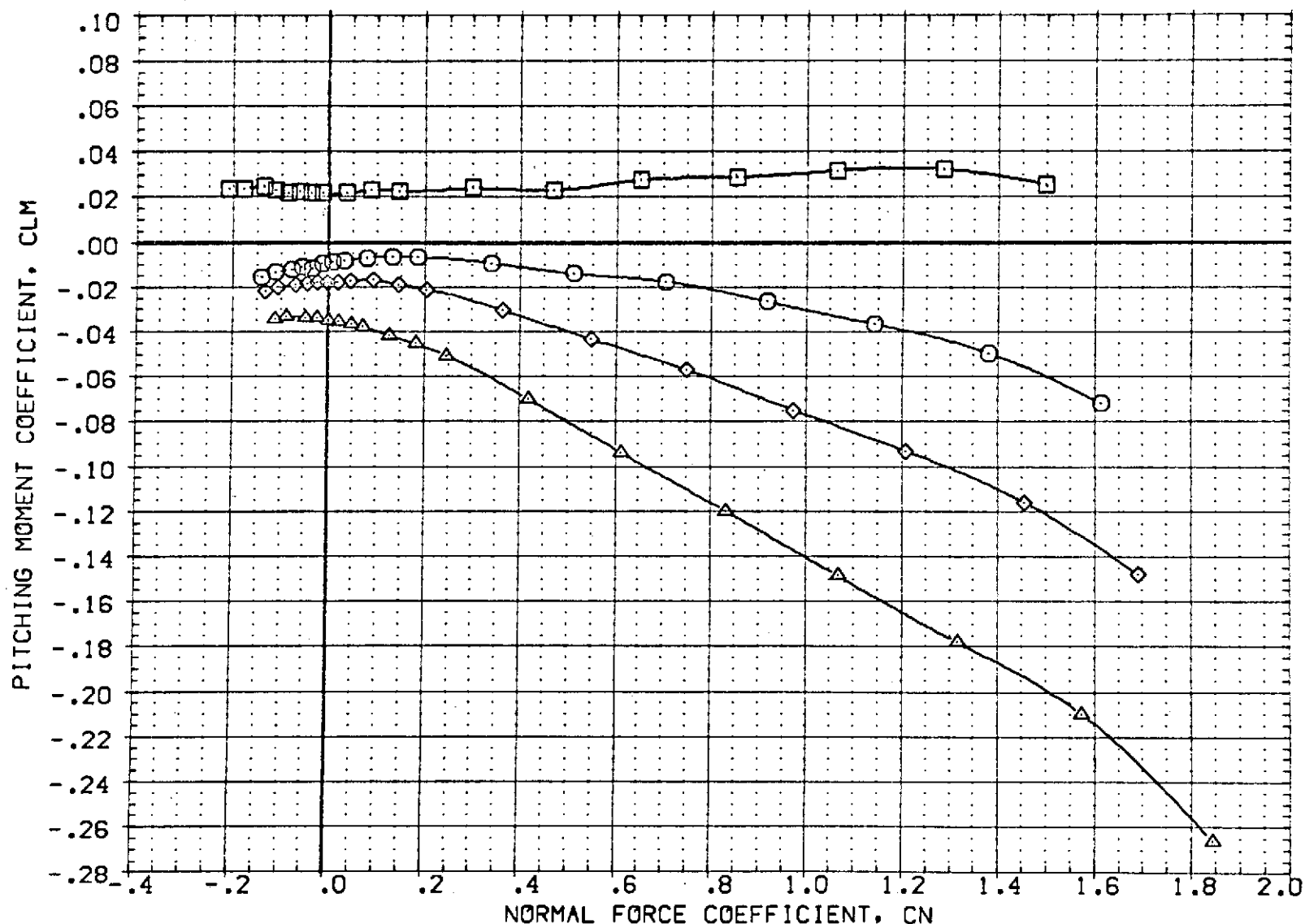


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	△	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

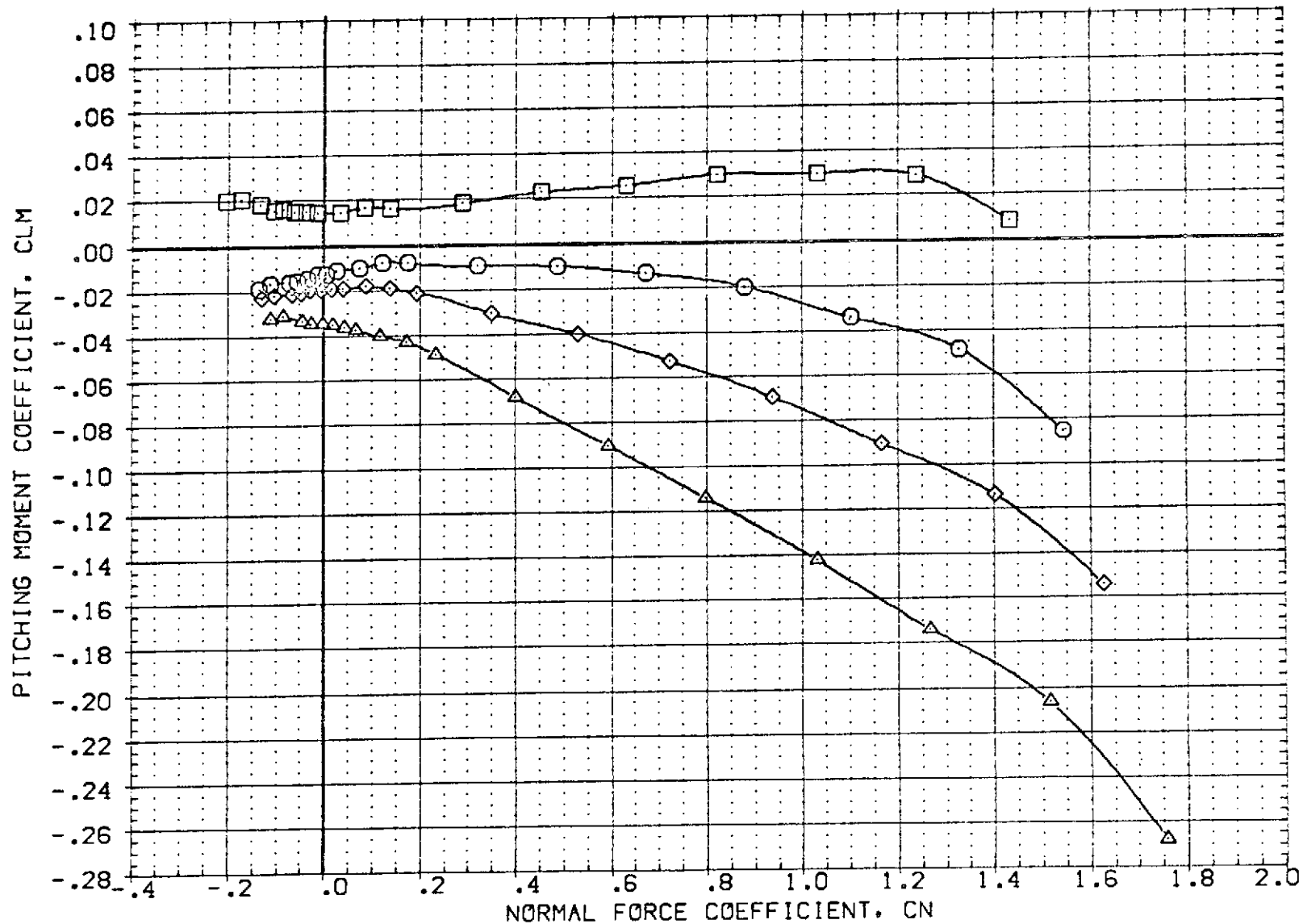


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)  
(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	□	QA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012)	○	QA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇	QA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2011)	△	QA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF	475.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
15.000	16.300	54.920	.000	XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

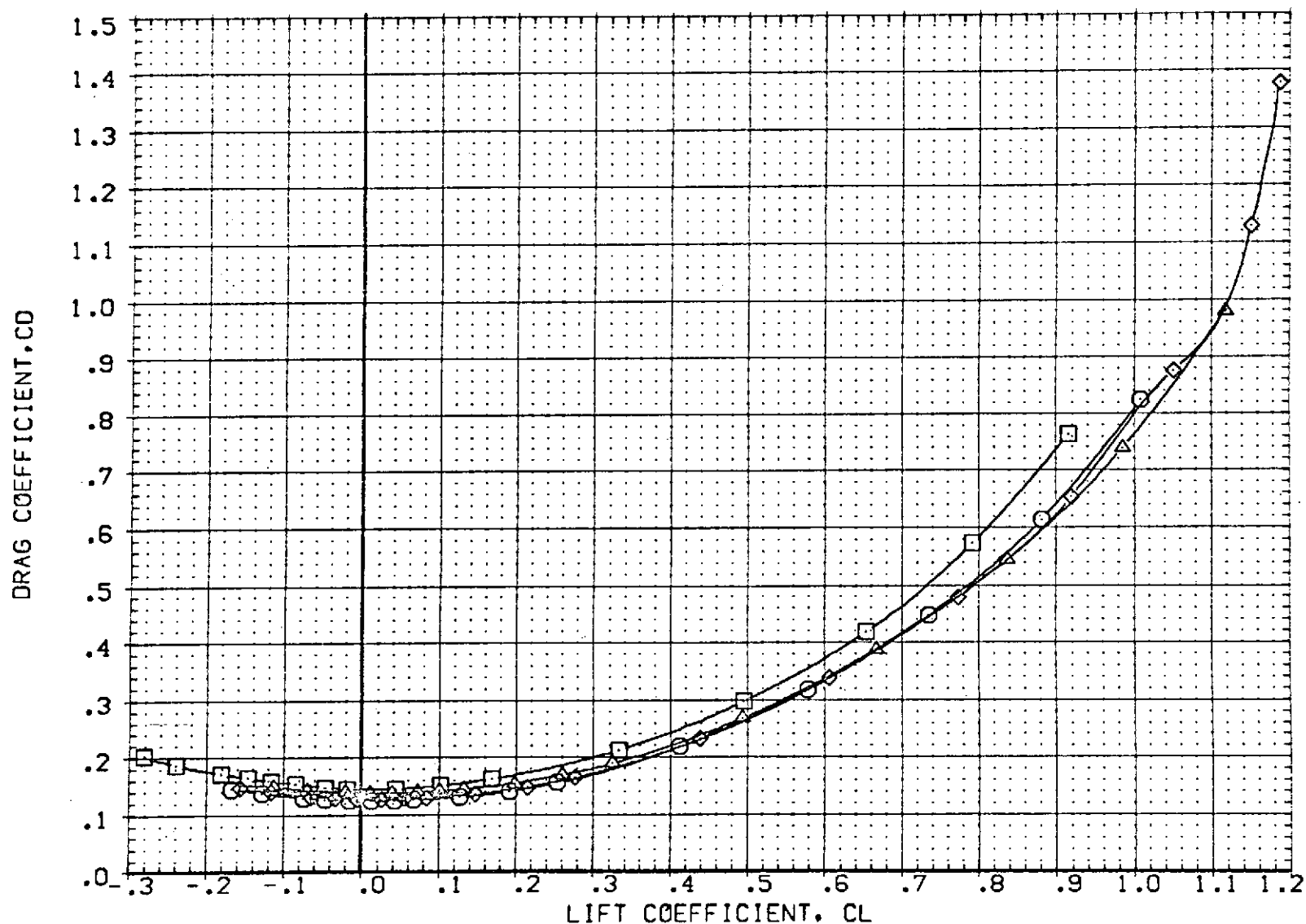


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A) MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2012)	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2011)	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

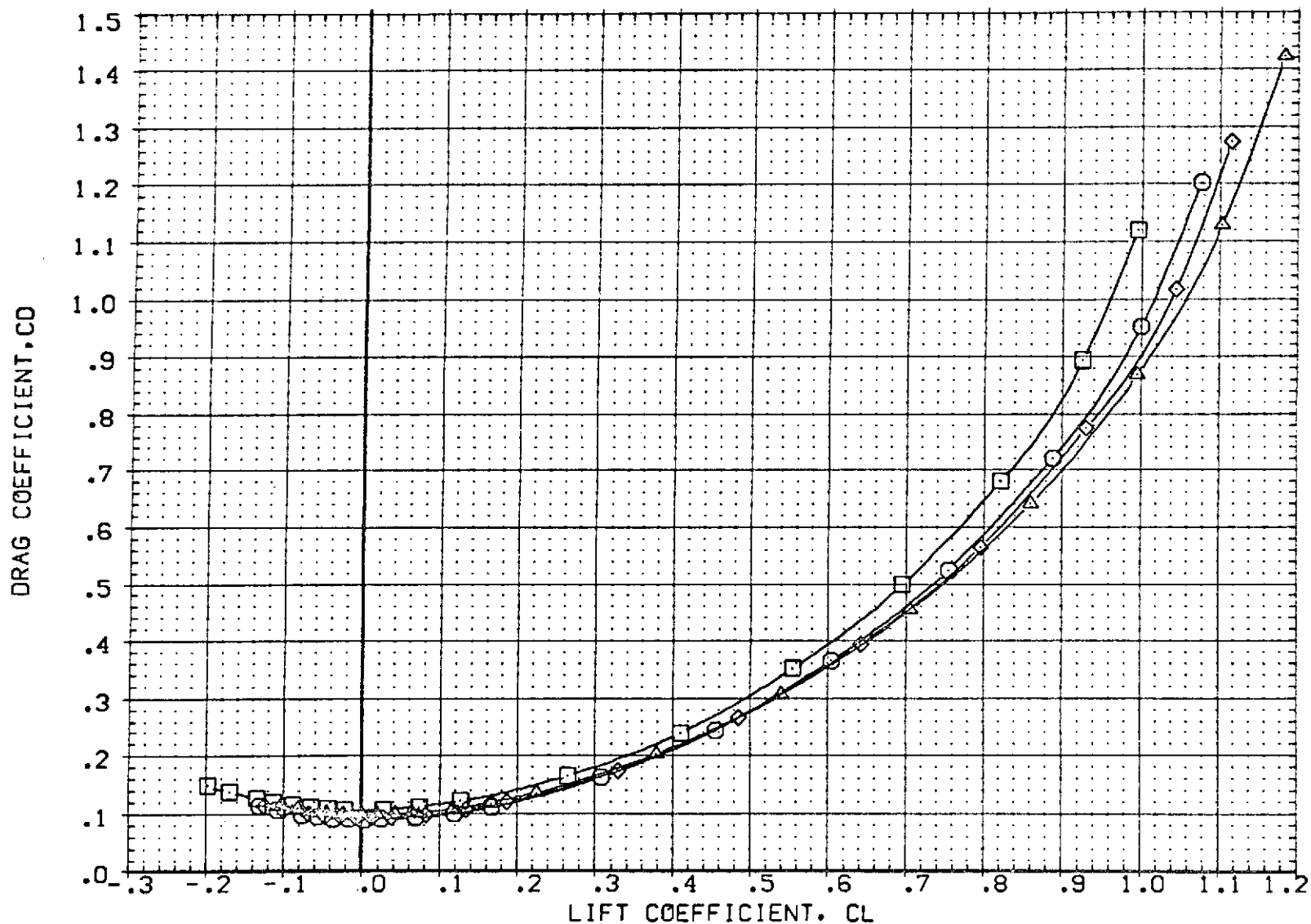


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPVT 1057 -140A/B DRBITER
(KQ2012)	OA20C LRC UPVT 1057 -140A/B DRBITER
(KQ2010)	OA20C LRC UPVT 1057 -140A/B DRBITER
(KQ2011)	OA20C LRC UPVT 1057 -140A/B DRBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
15.000	16.300	54.920	.000	XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

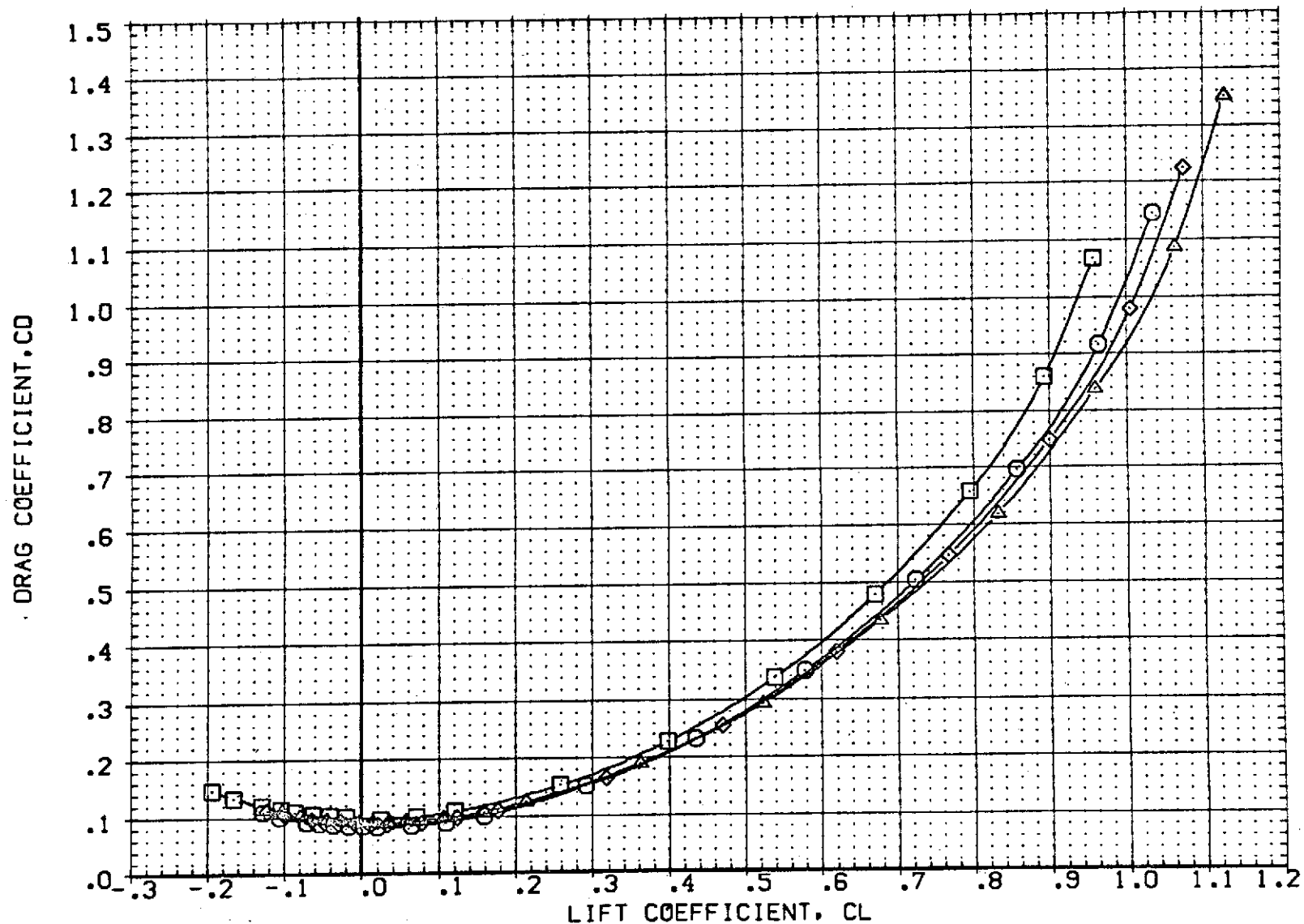


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02012)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02011)	△	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

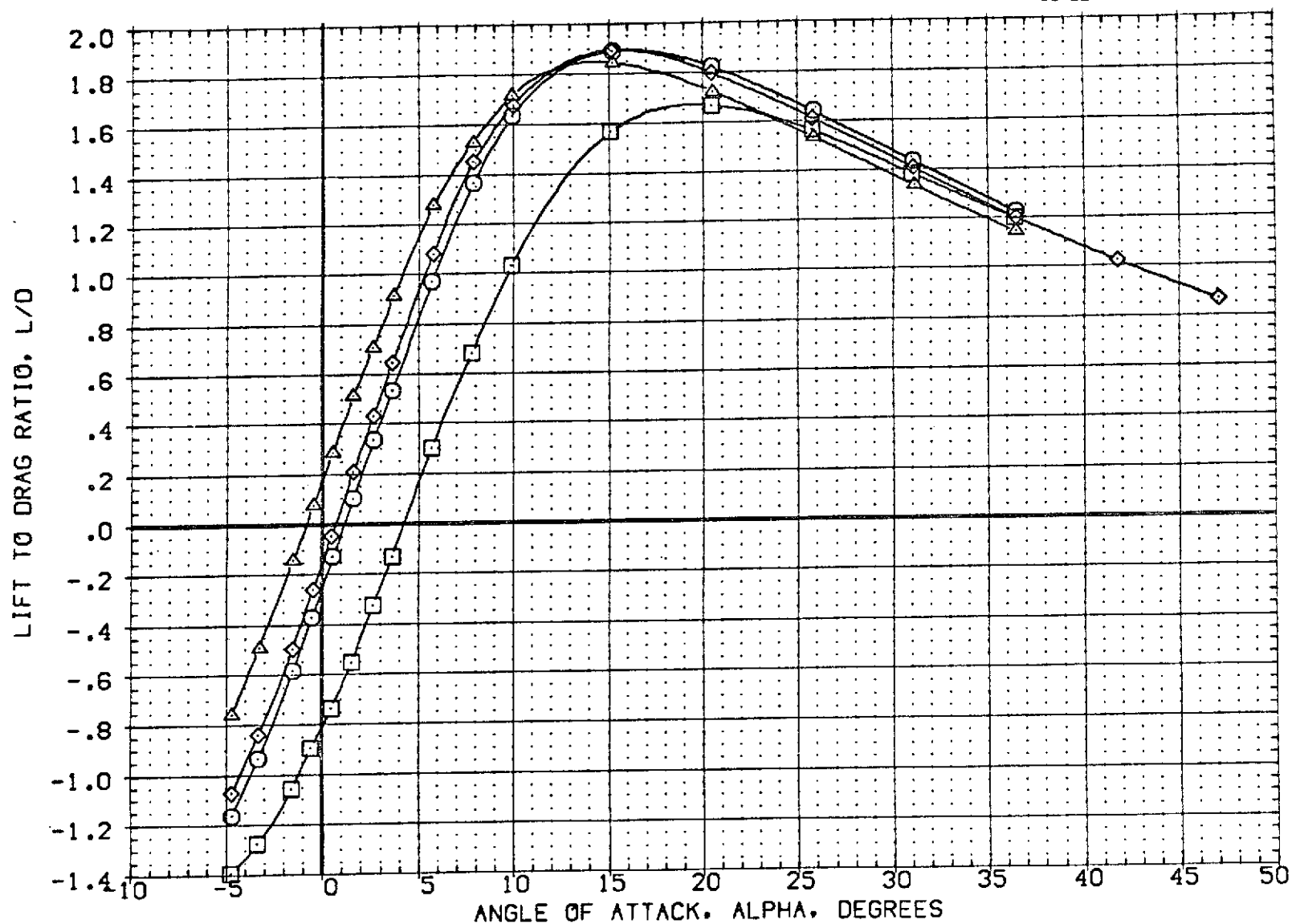


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{KQ2015}	0A20C LRC UPVT 1057 -140A/B ORBITER
{KQ2012}	0A20C LRC UPVT 1057 -140A/B ORBITER
{KQ2010}	0A20C LRC UPVT 1057 -140A/B ORBITER
{KQ2011}	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

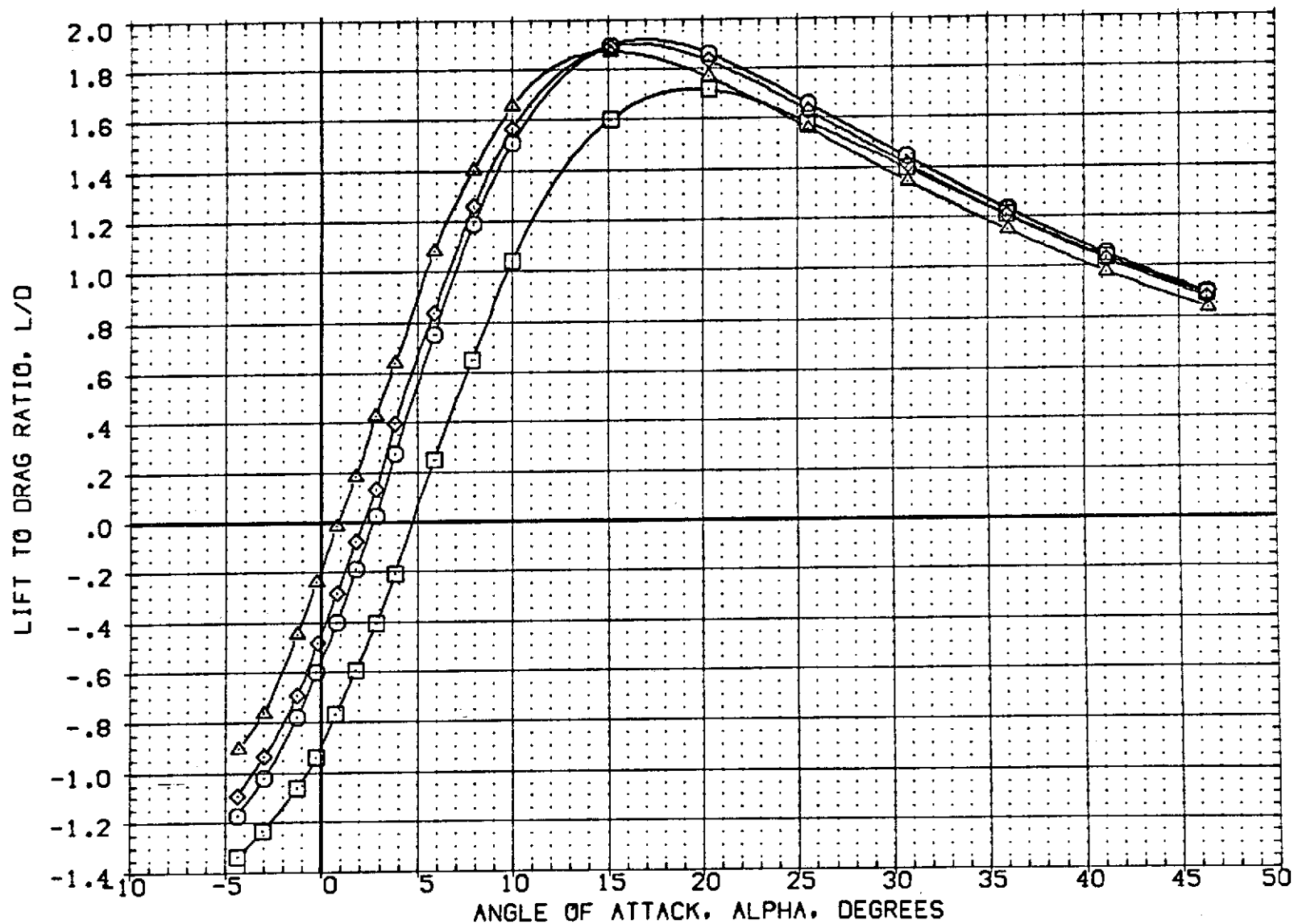


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)  
(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	◇ OA20C LRC UPVT 1057 -140A/B ORBITER
(K02011)	△ OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

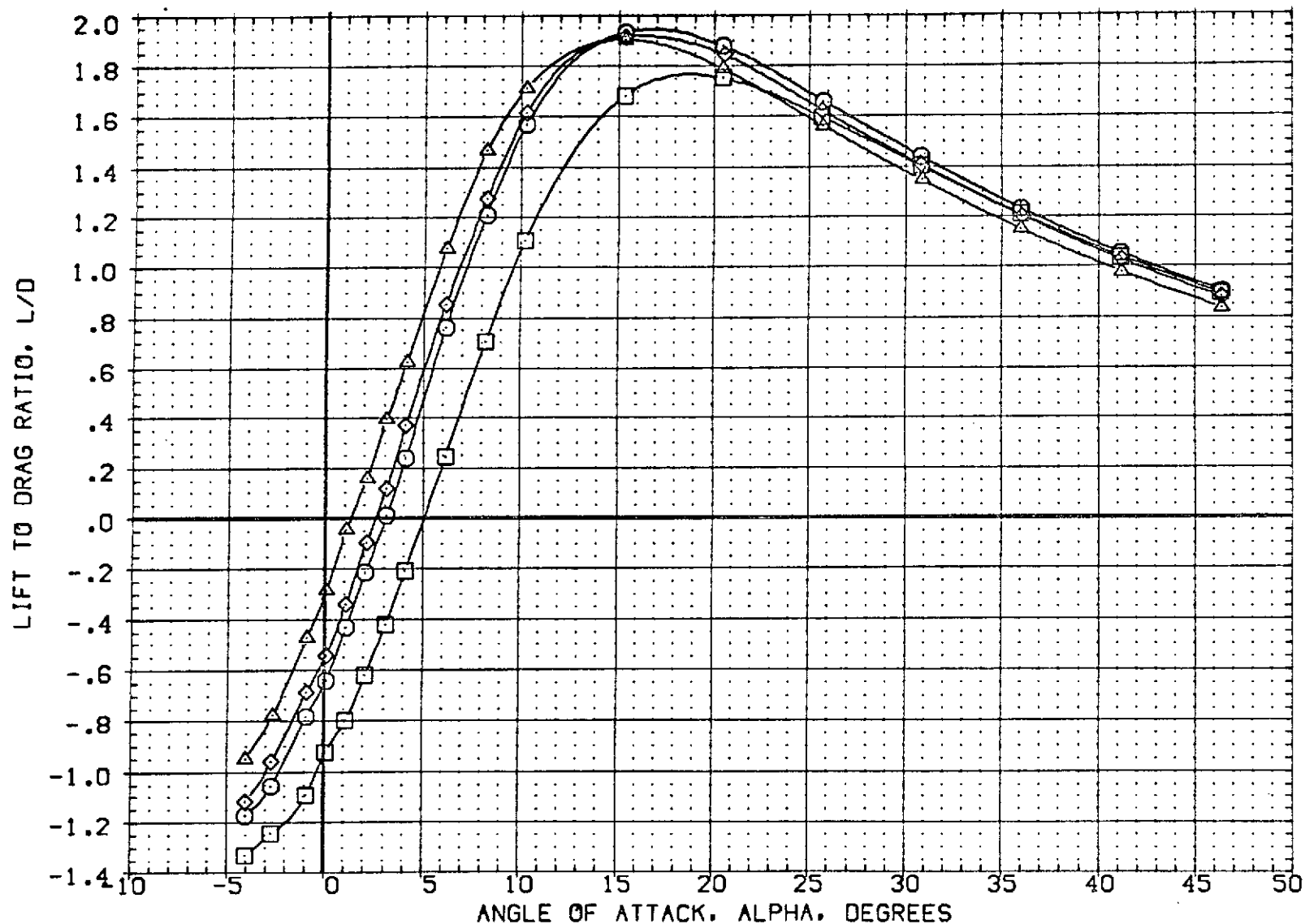


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2011)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

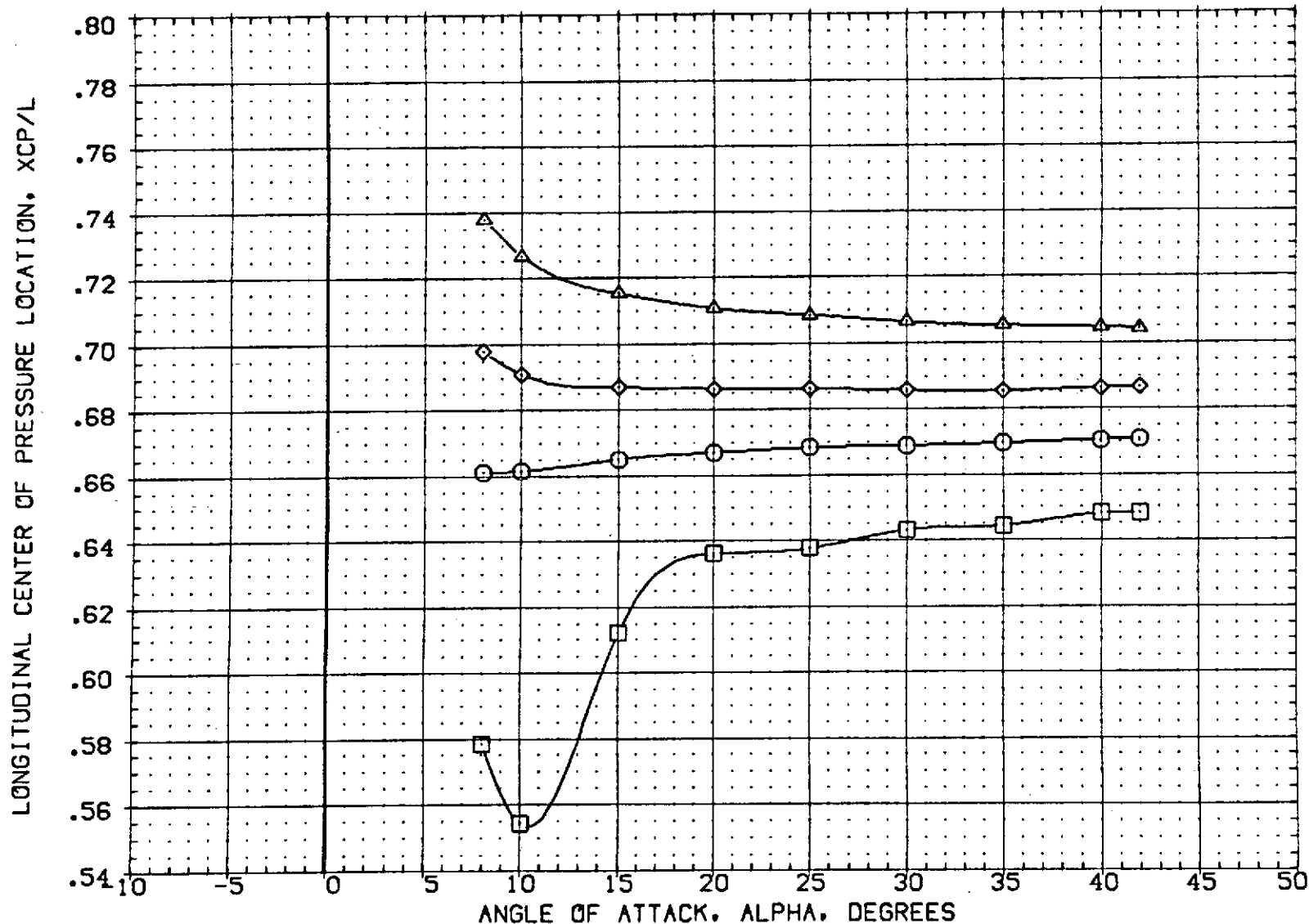


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(EQ2012)	OA20C LRC UPWT 1057 -140A/B ORBITER
(EQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER
(EQ2011)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

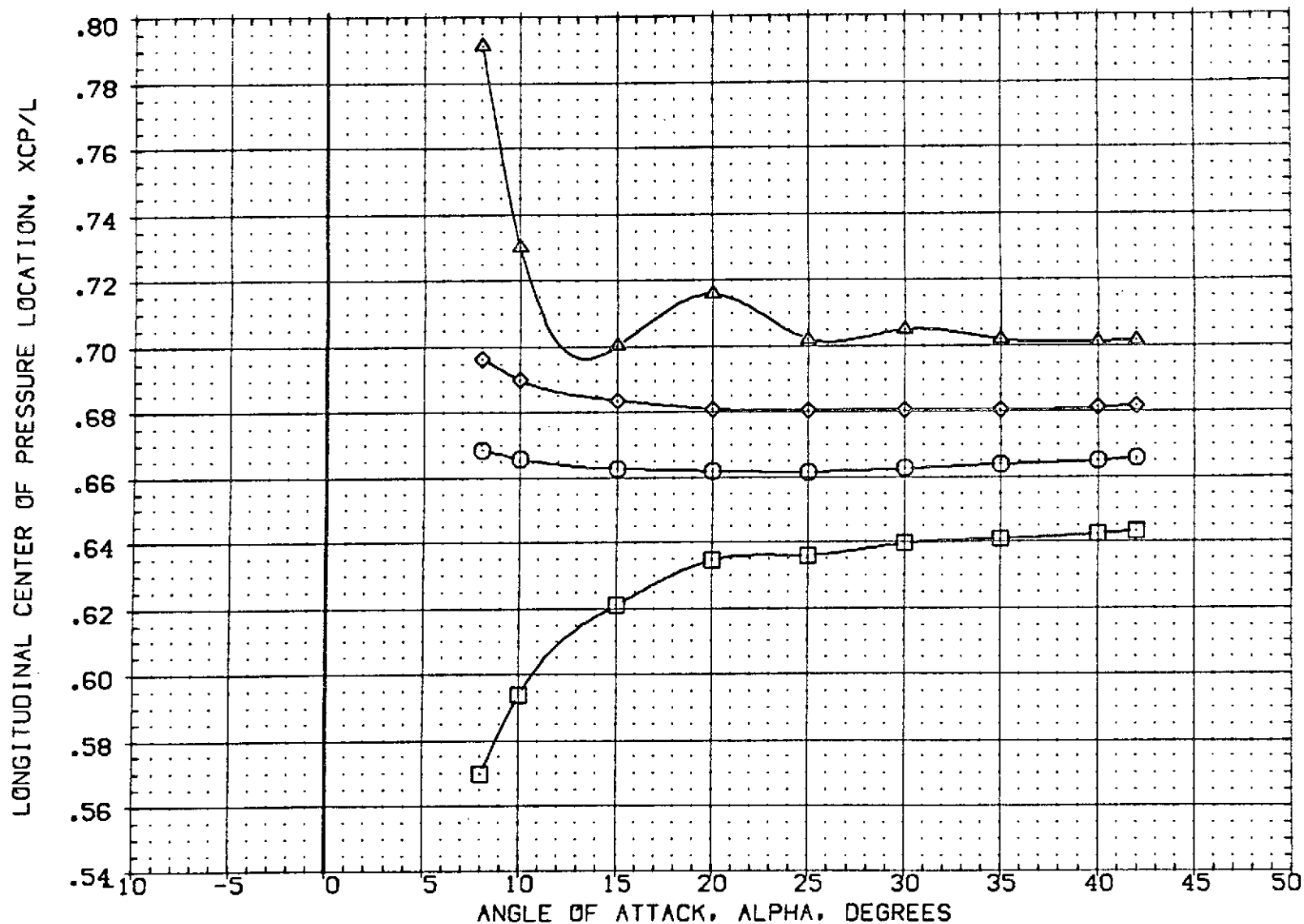


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER
(EQ2011)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
15.000	16.300	54.920	.000	XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

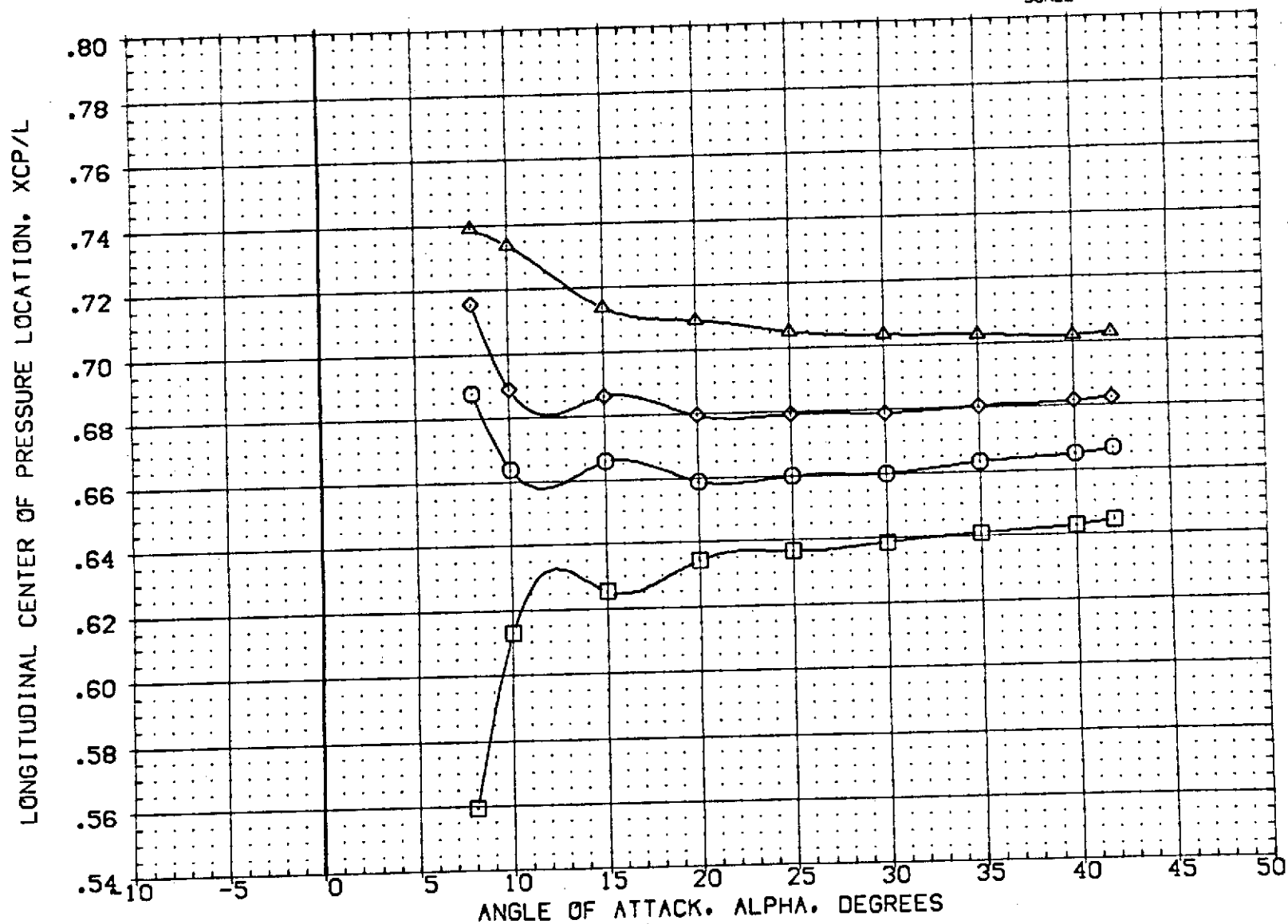


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)  
(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2012)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2010)	◇ OA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2011)	△ OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

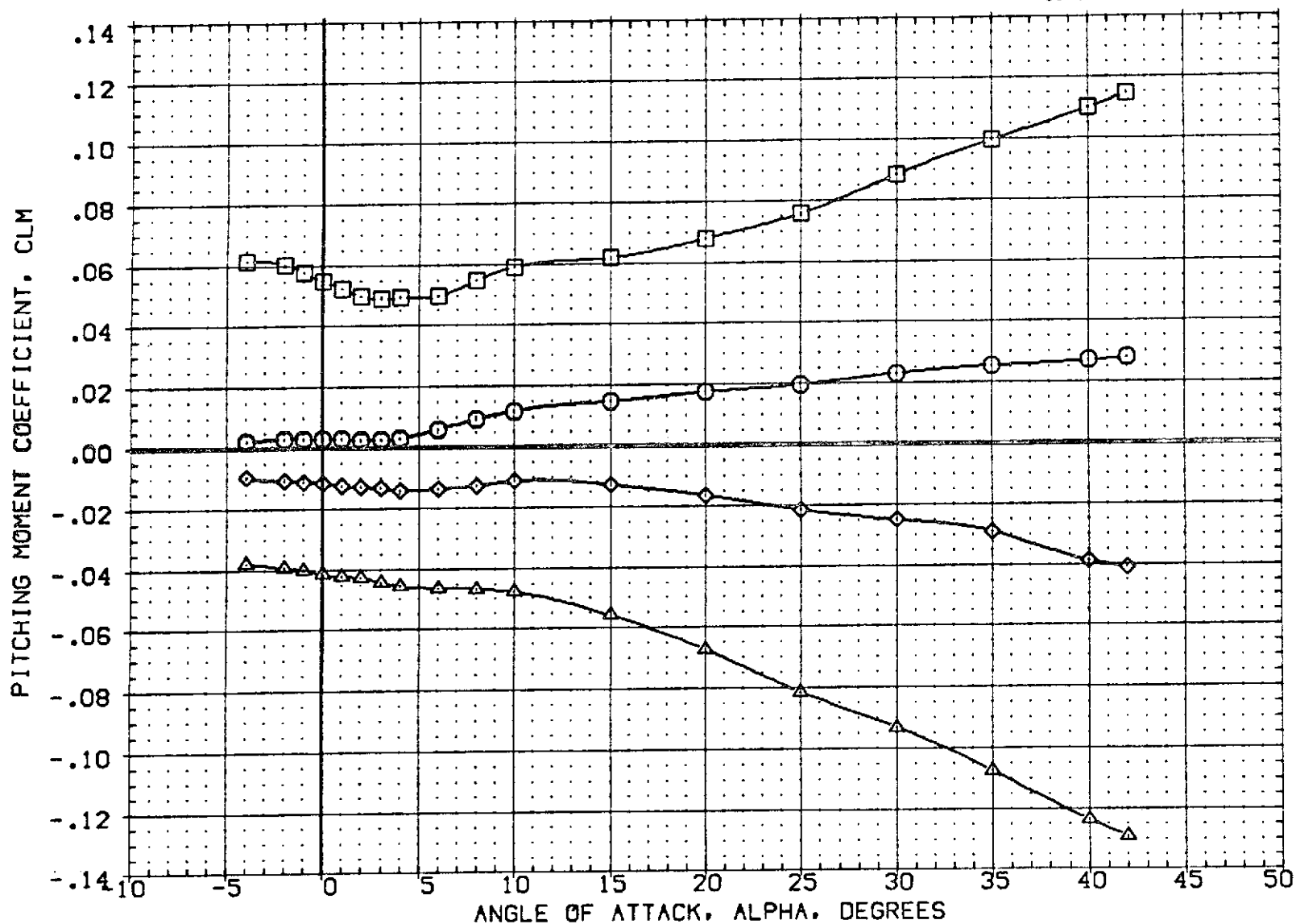


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2015)	QA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2012)	QA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2010)	QA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2011)	QA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
-40.000	-11.700	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
15.000	16.300	54.920	.000	XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

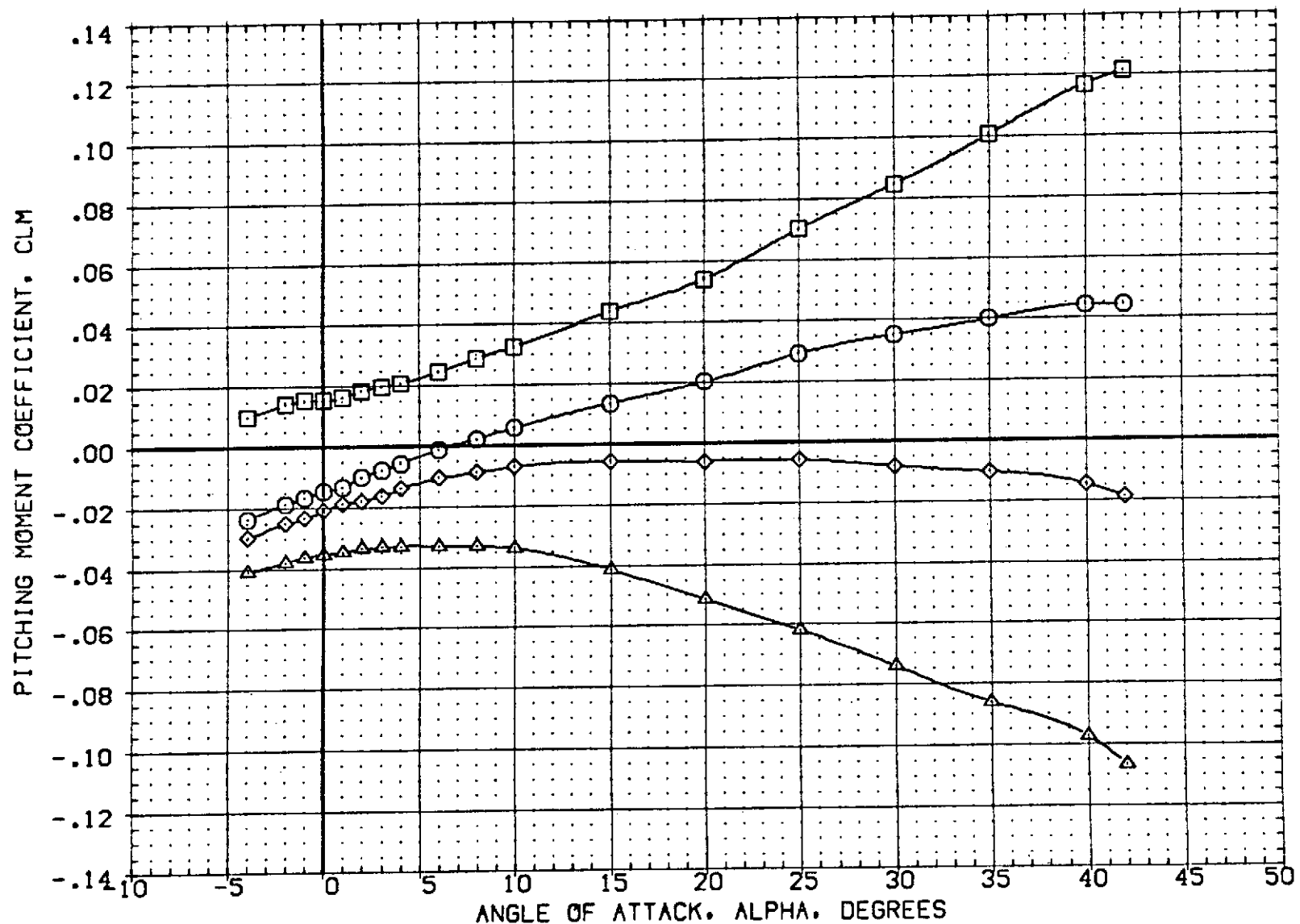


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(P02015)	0A20C LRC UPWT 1057 -140A/B ORBITER
(P02012)	0A20C LRC UPWT 1057 -140A/B ORBITER
(P02010)	0A20C LRC UPWT 1057 -140A/B ORBITER
(P02011)	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
-40.000	-11.700	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
15.000	16.300	54.920	.000	XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

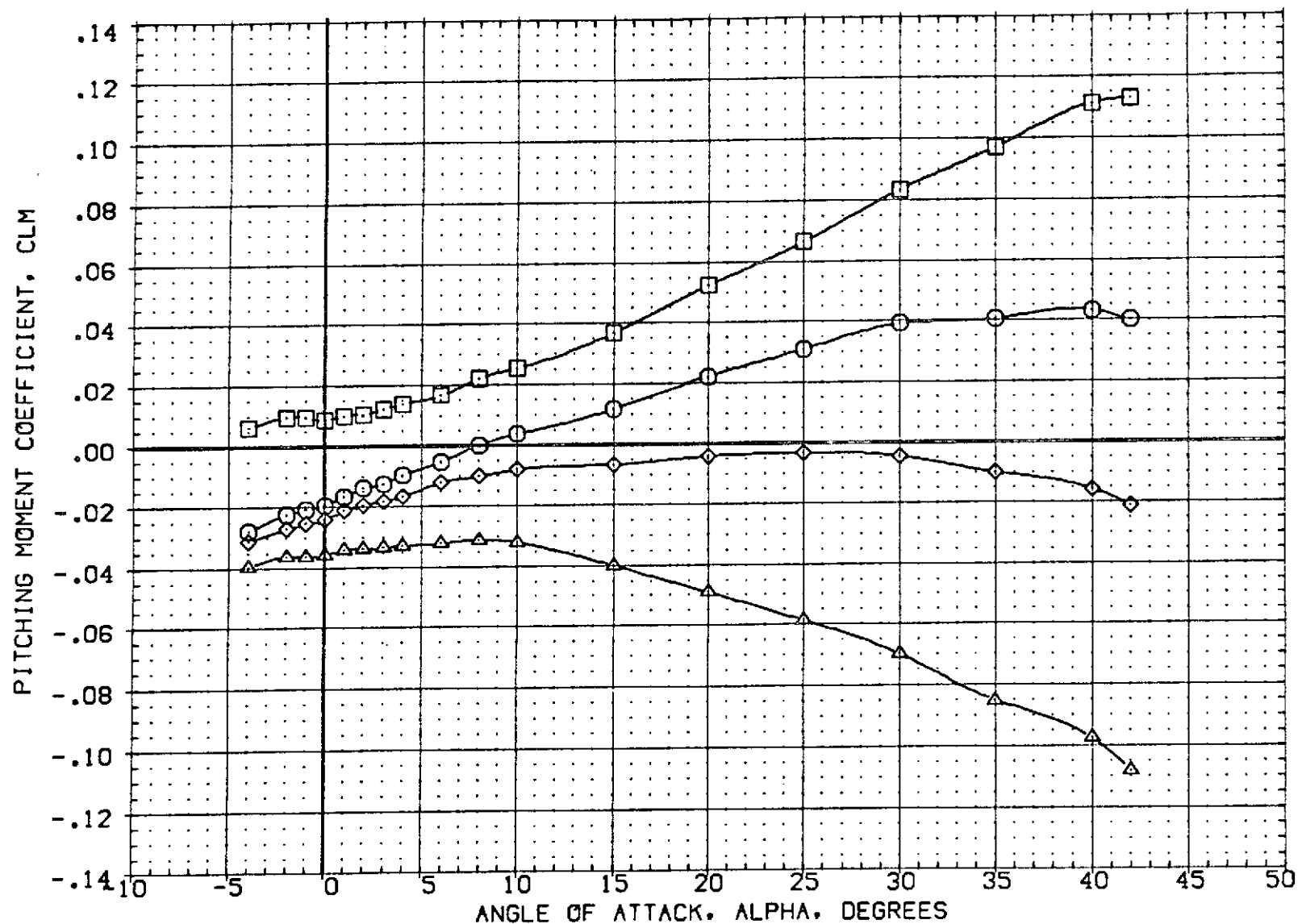


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012)	□ 0A20C LRC UPVT 1057 -140A/B ORBITER
(G02011)	○ 0A20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

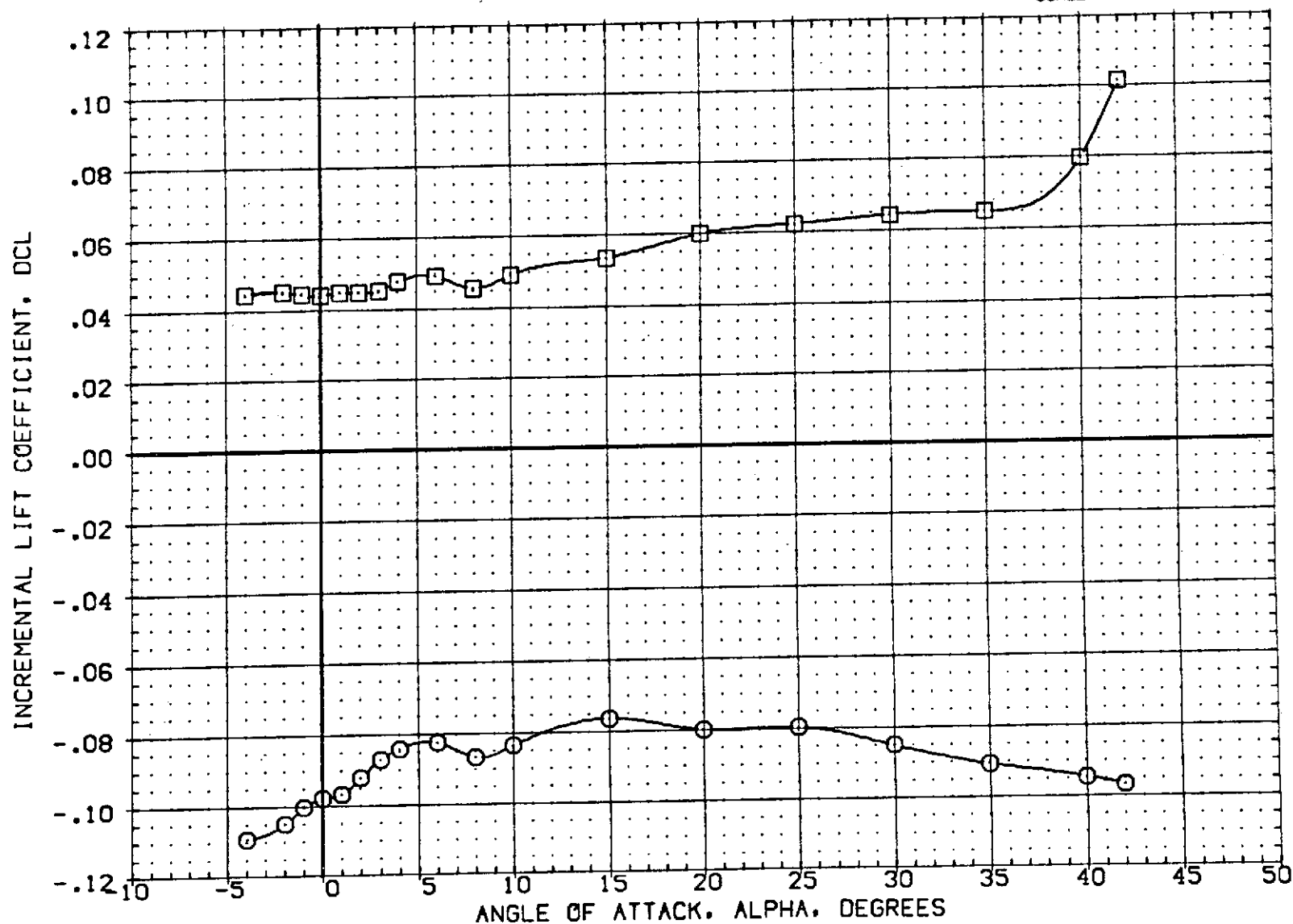


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012)	□ 0A20C LRC UPWT 1057 -140A/B ORBITER
(G02011)	○ 0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
-40.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

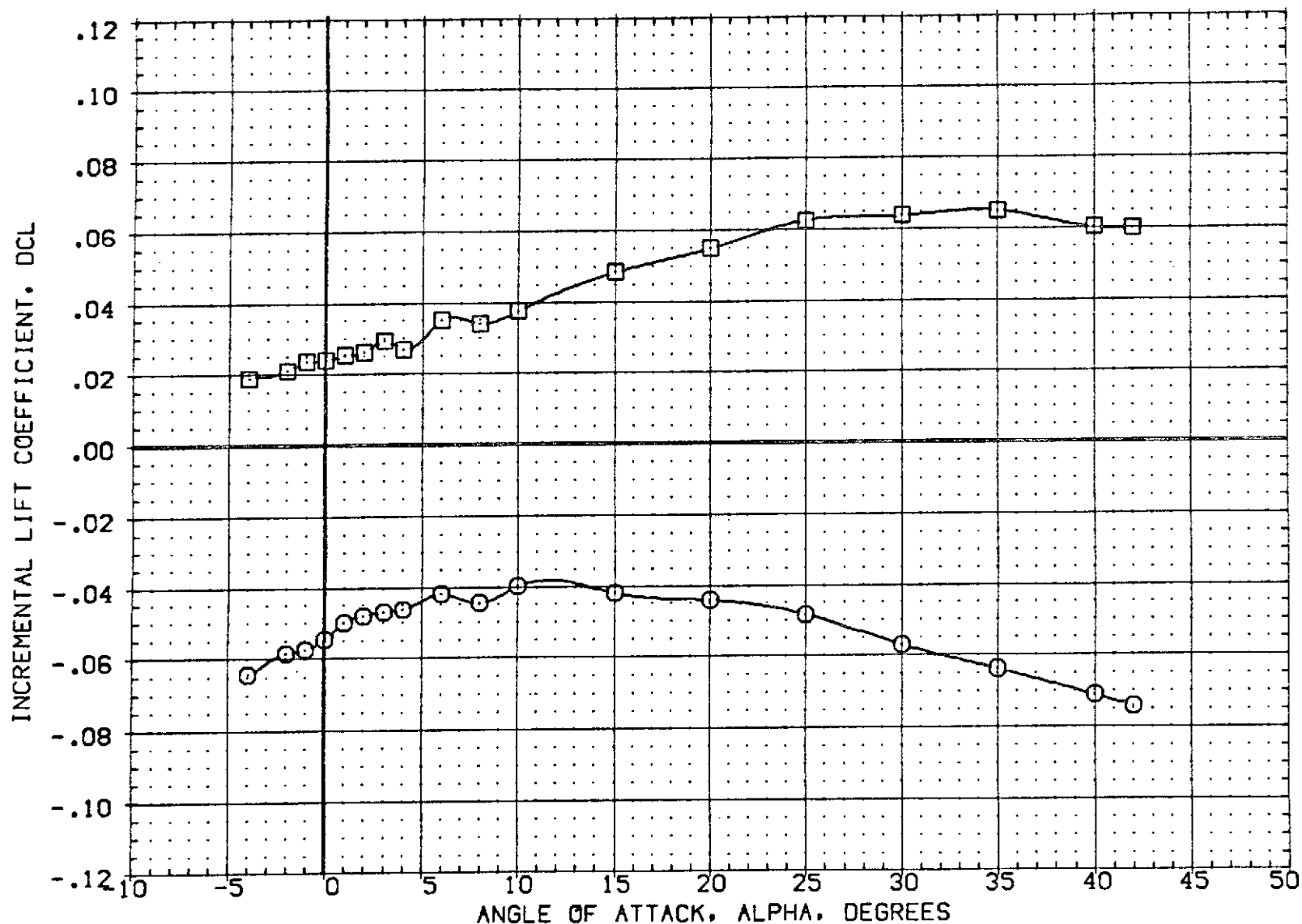


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2012)	□ OA20C LRC UPWT 1057 -140A/B ORBITER
(GQ2011)	○ OA20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

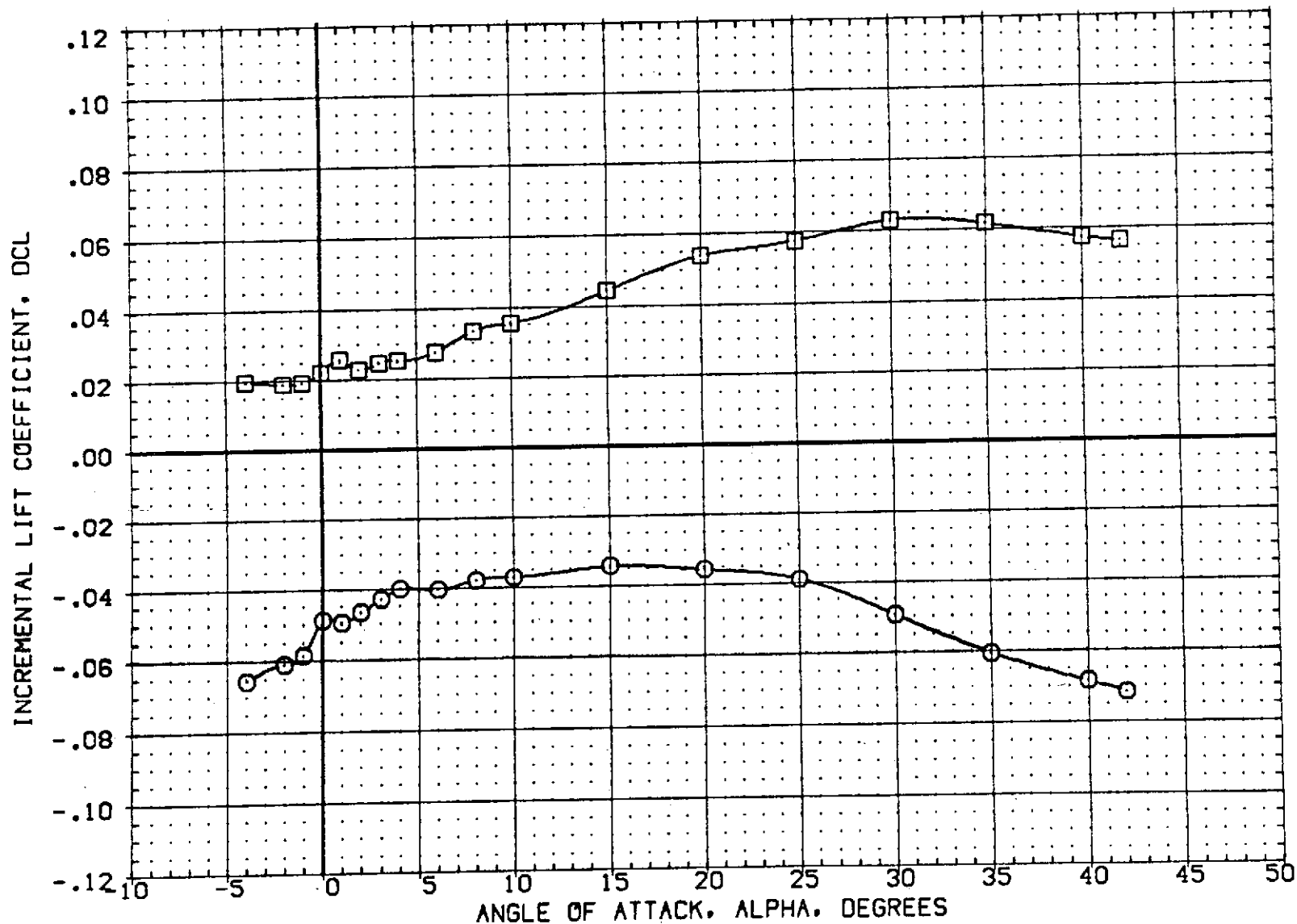


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)  
(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{GQ2012}	□ OA20C LRC UPVT 1057 -140A/B ORBITER
{GQ2011}	○ OA20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	SOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
-40.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

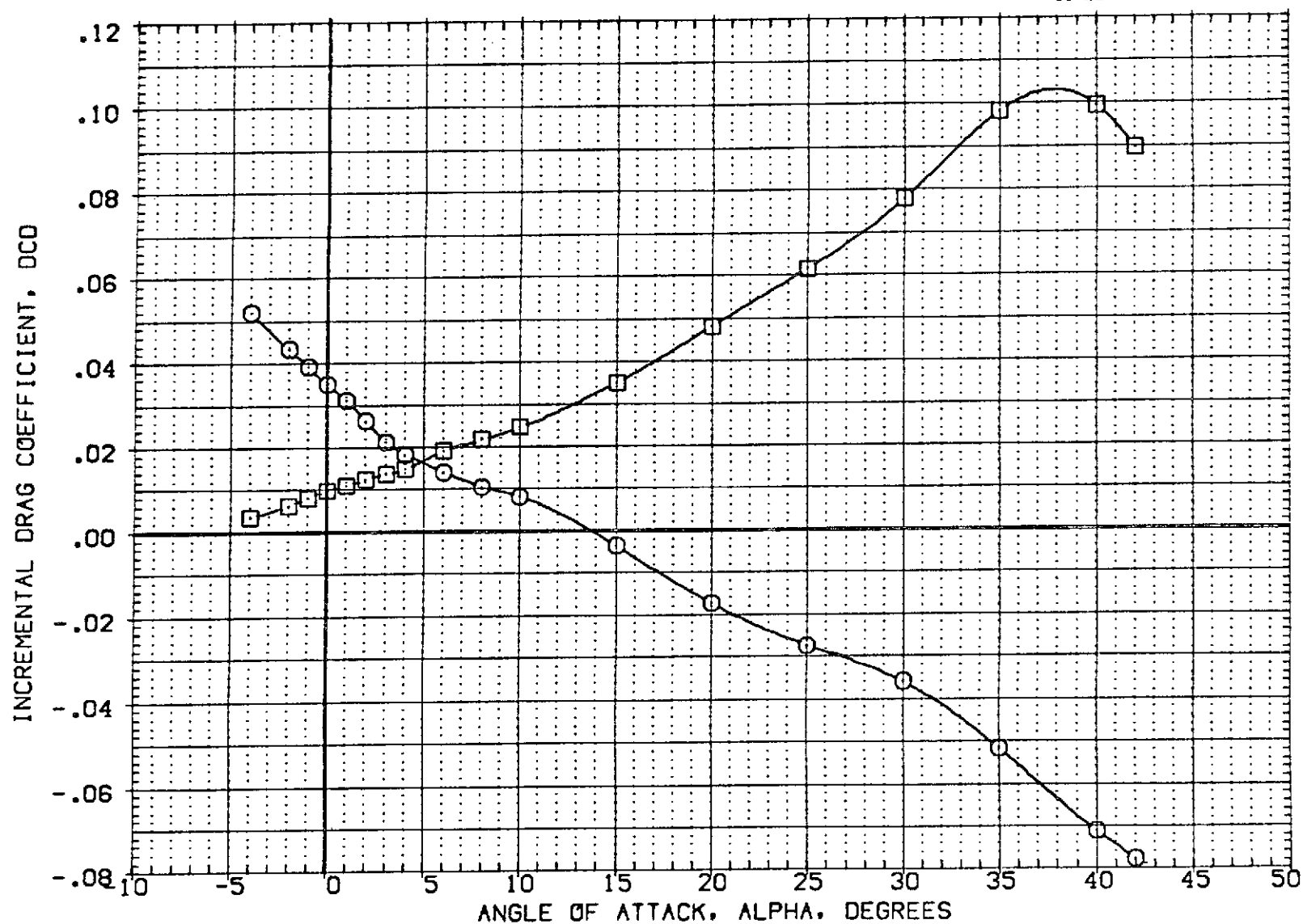


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(G02011)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON
-10.000	-11.700	54.920	.000
15.000	16.300	54.920	.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	1.0000	SCALE

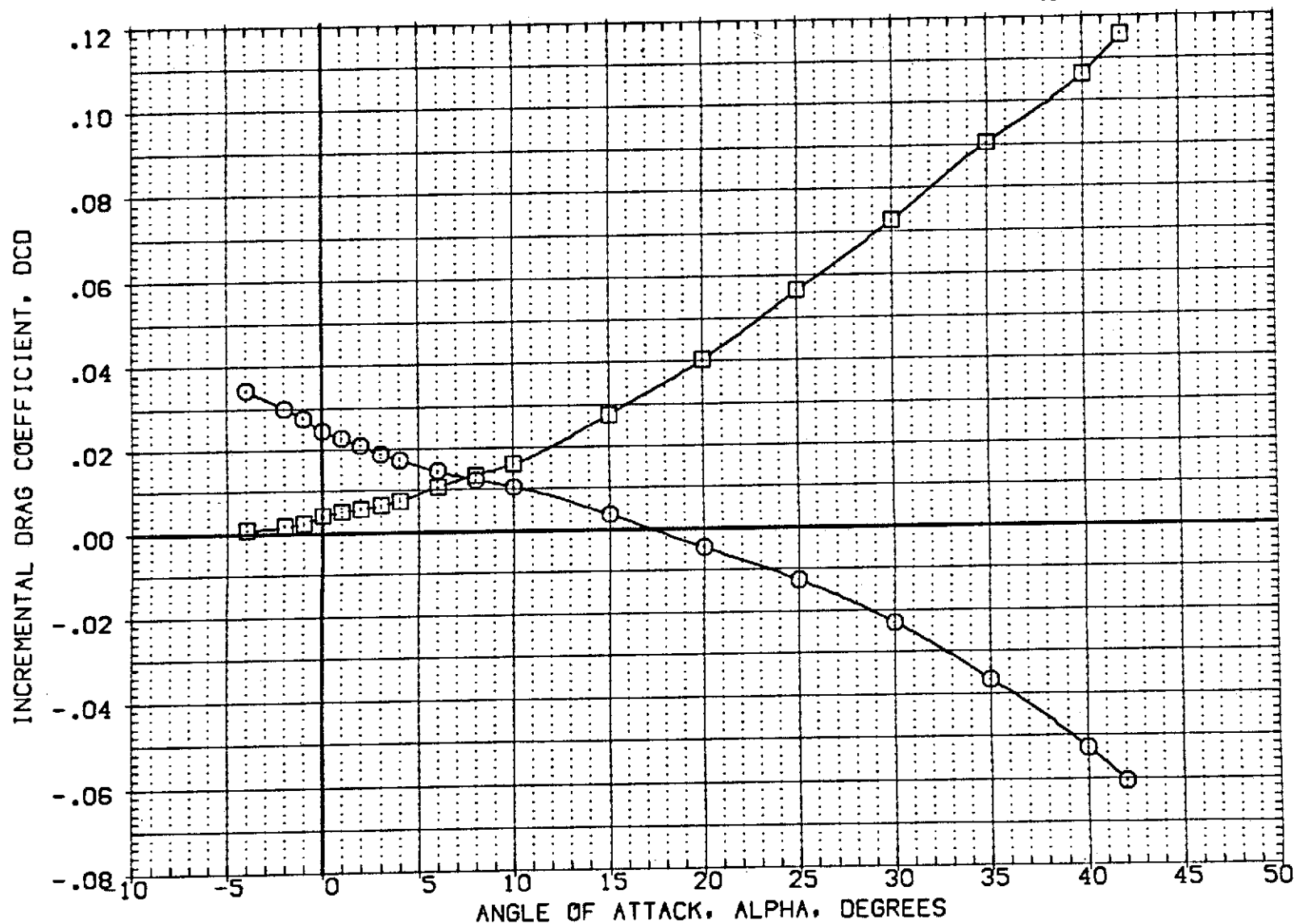


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (GQ2012) ○ 0A20C LRC UPWT 1057 -140A/B ORBITER  
 (GQ2011) □ 0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

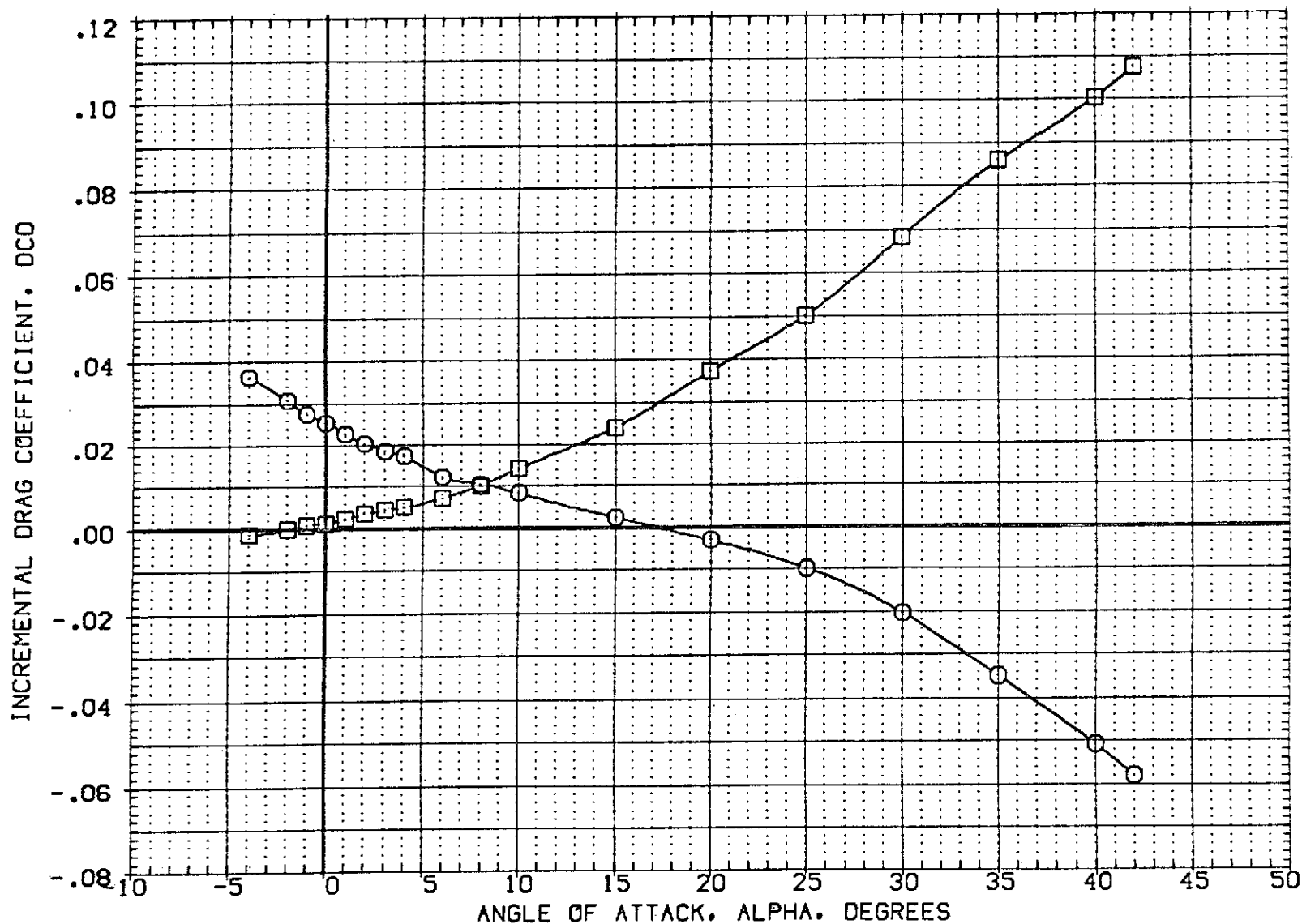


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02012) ○ 0A20C LRC UPVT 1057 -140A/B ORBITER  
 (G02011) □ 0A20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

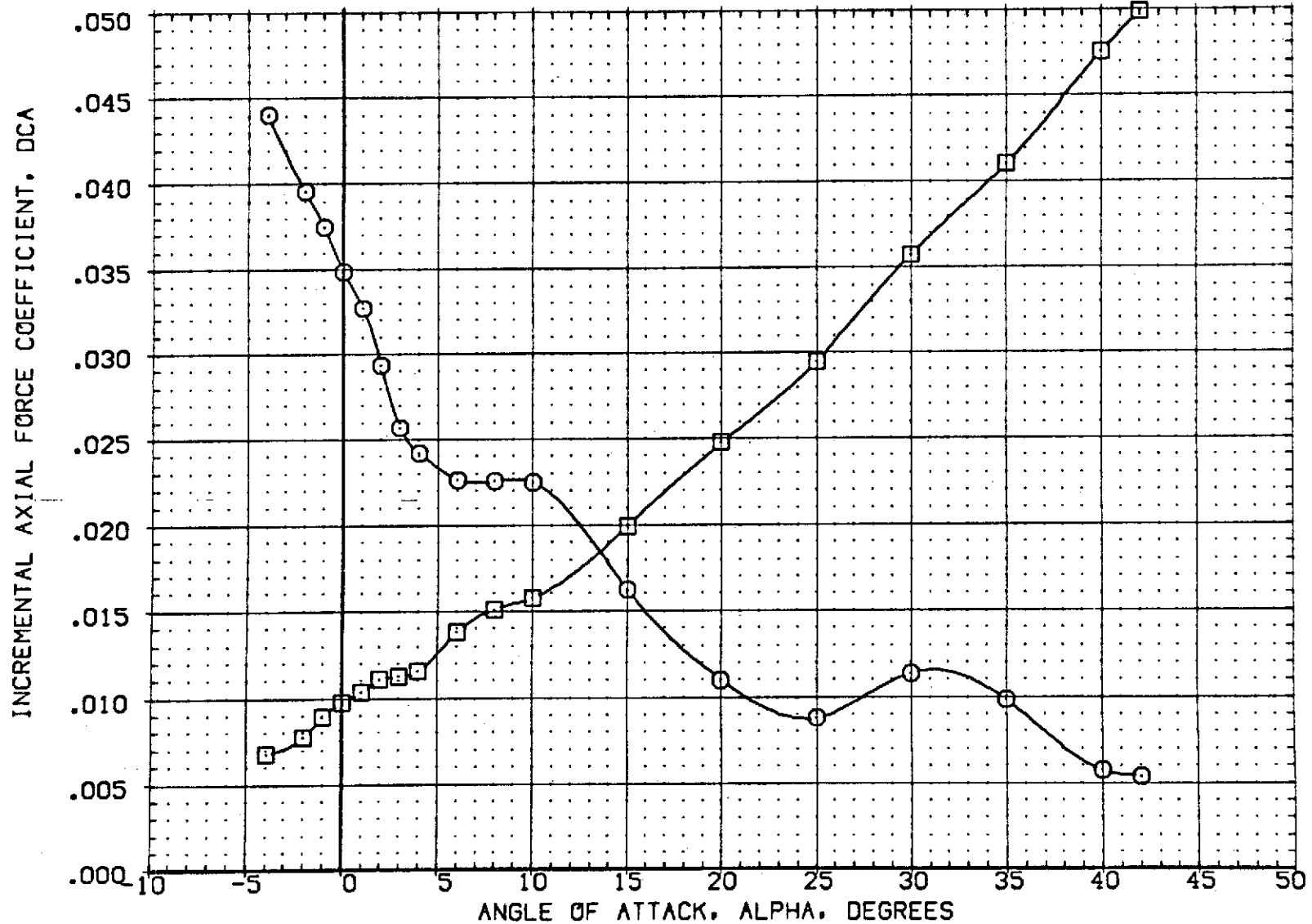


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2012)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(GQ2011)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6916	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

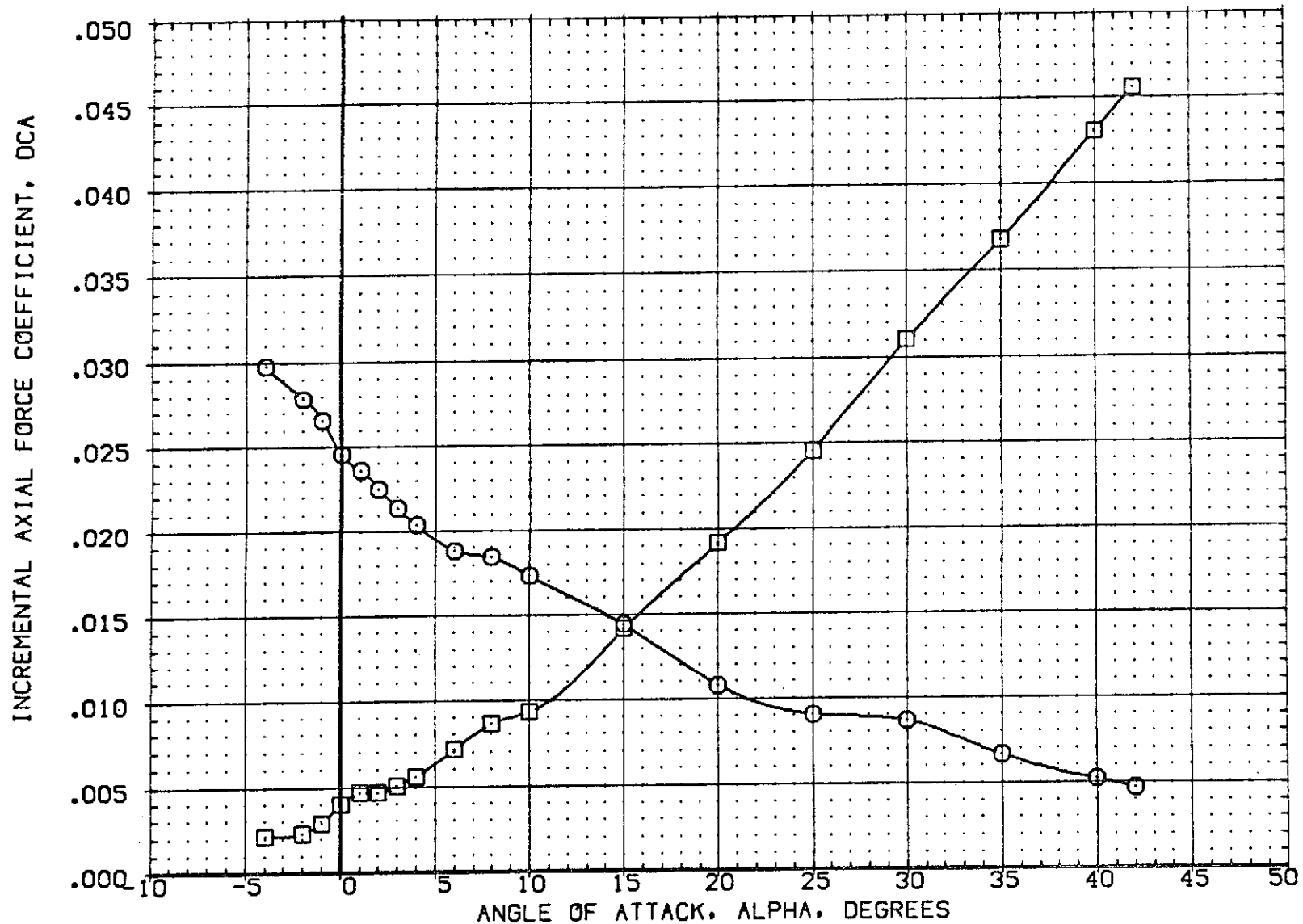


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{G02012}	○ OA20C LRC UPWT 1057 -140A/B ORBITER
{G02011}	□ OA20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
-40.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117 IN.
				BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

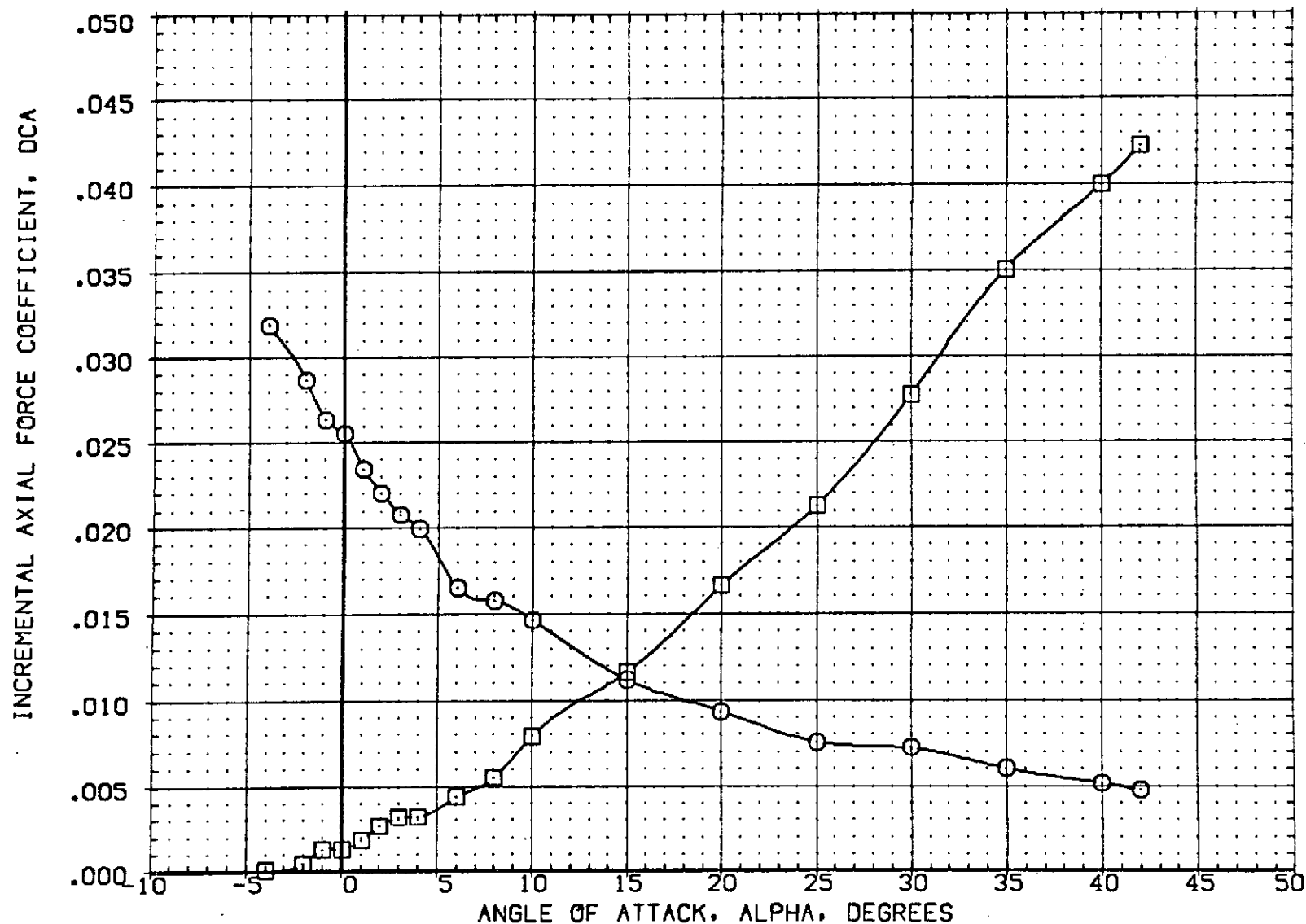


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012) ○	0A20C LRC UPWT 1057 -140A/B ORBITER
(G02011) □	0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

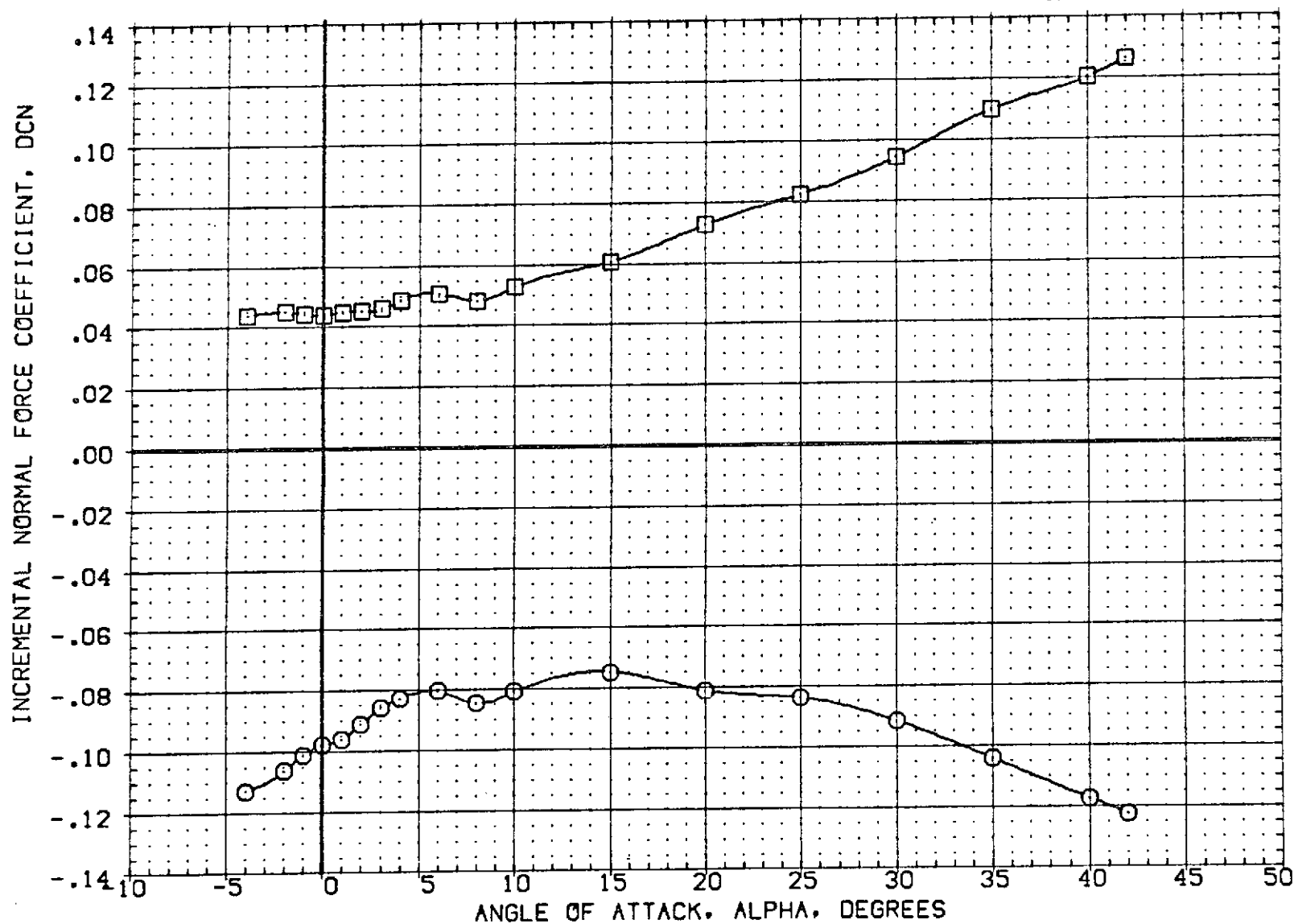


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012)	□ OA20C LRC UPWT 1057 -140A/B ORBITER
(G02011)	○ OA20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
-40.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117 IN.
				BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

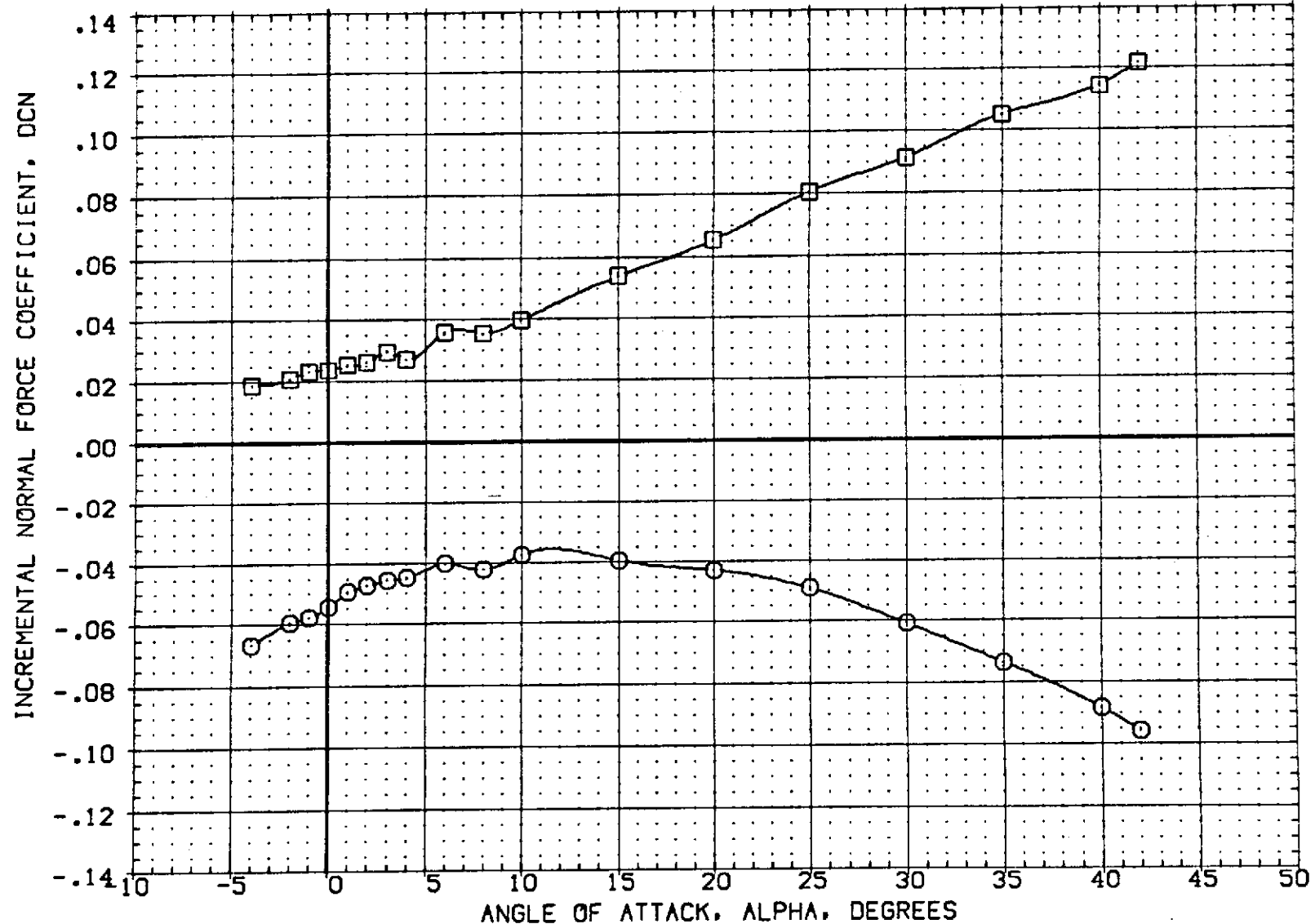




FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02012)  0A20C LRC UPWT 1057 -140A/B ORBITER  
 (G02011)  0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPDSRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

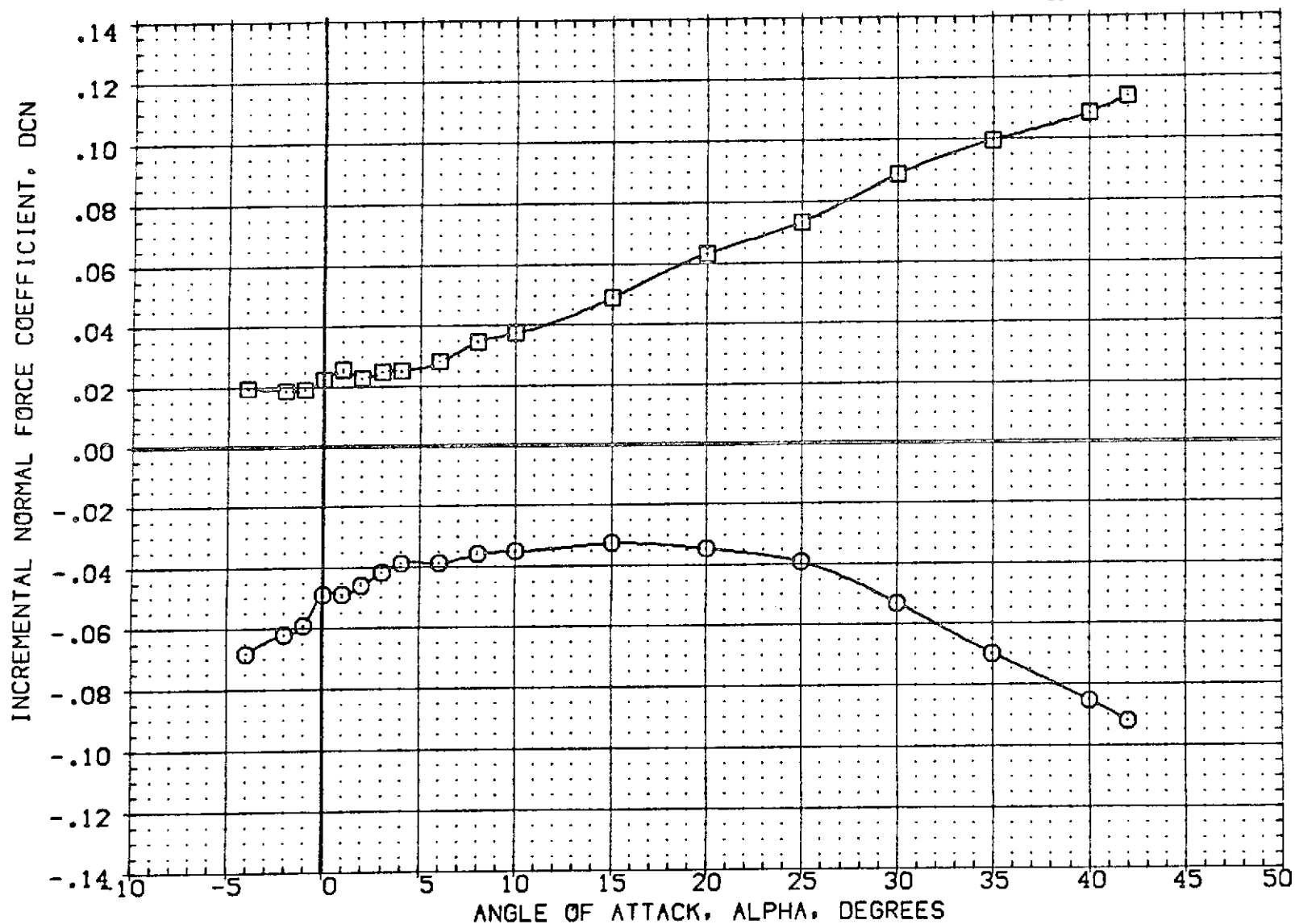


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02012) ○ 0A20C LRC UPWT 1057 -140A/B ORBITER  
 (G02011) □ 0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

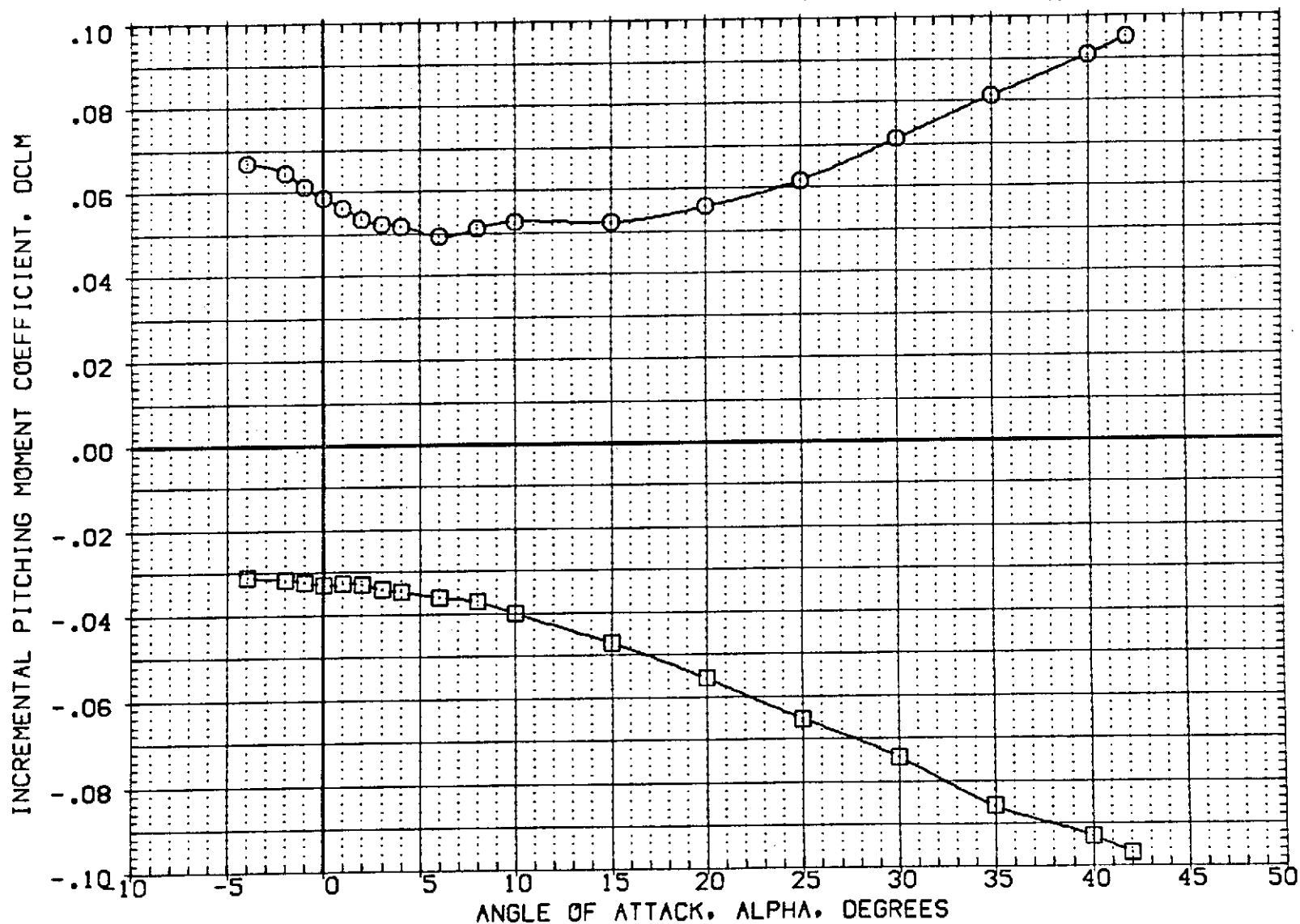




FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (GQ2012)  OA20C LRC UPWT 1057 -140A/B ORBITER  
 (GQ2011)  OA20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

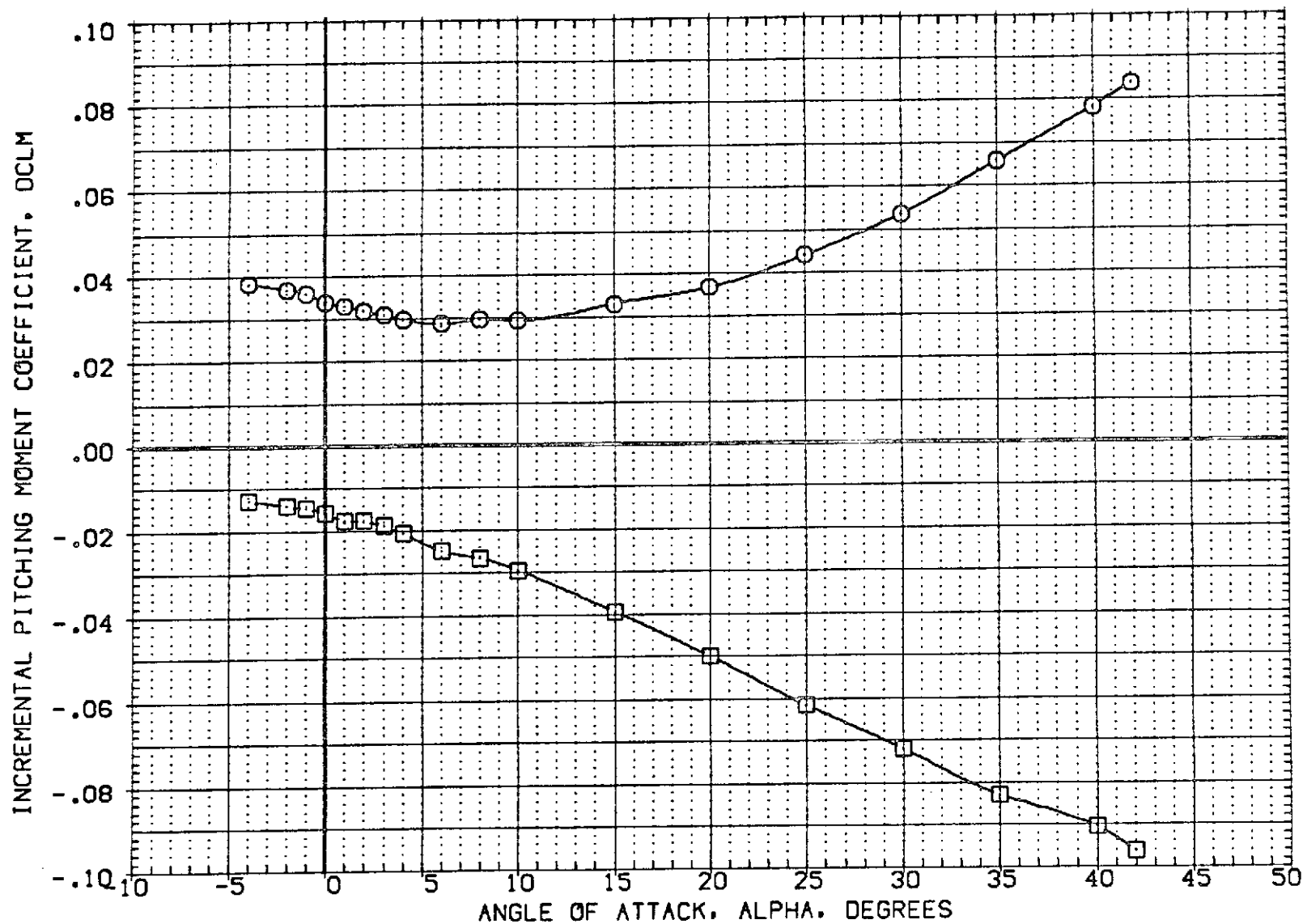


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02012)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(G02011)	○ OA20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
-40.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

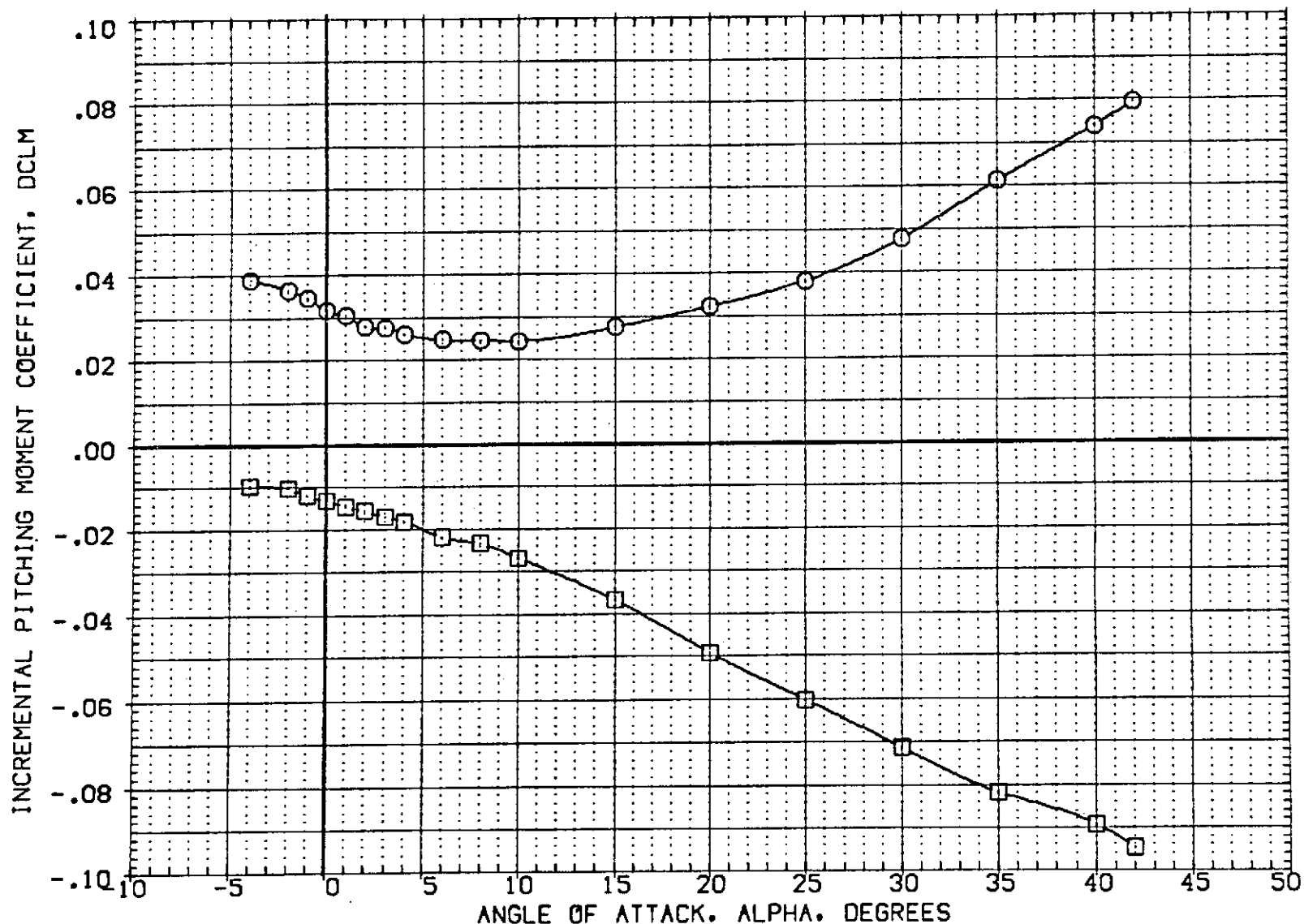


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (002012) ○ 0A20C LRC UPWT 1057 -140A/B ORBITER  
 (002011) □ 0A20C LRC UPWT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
-40.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

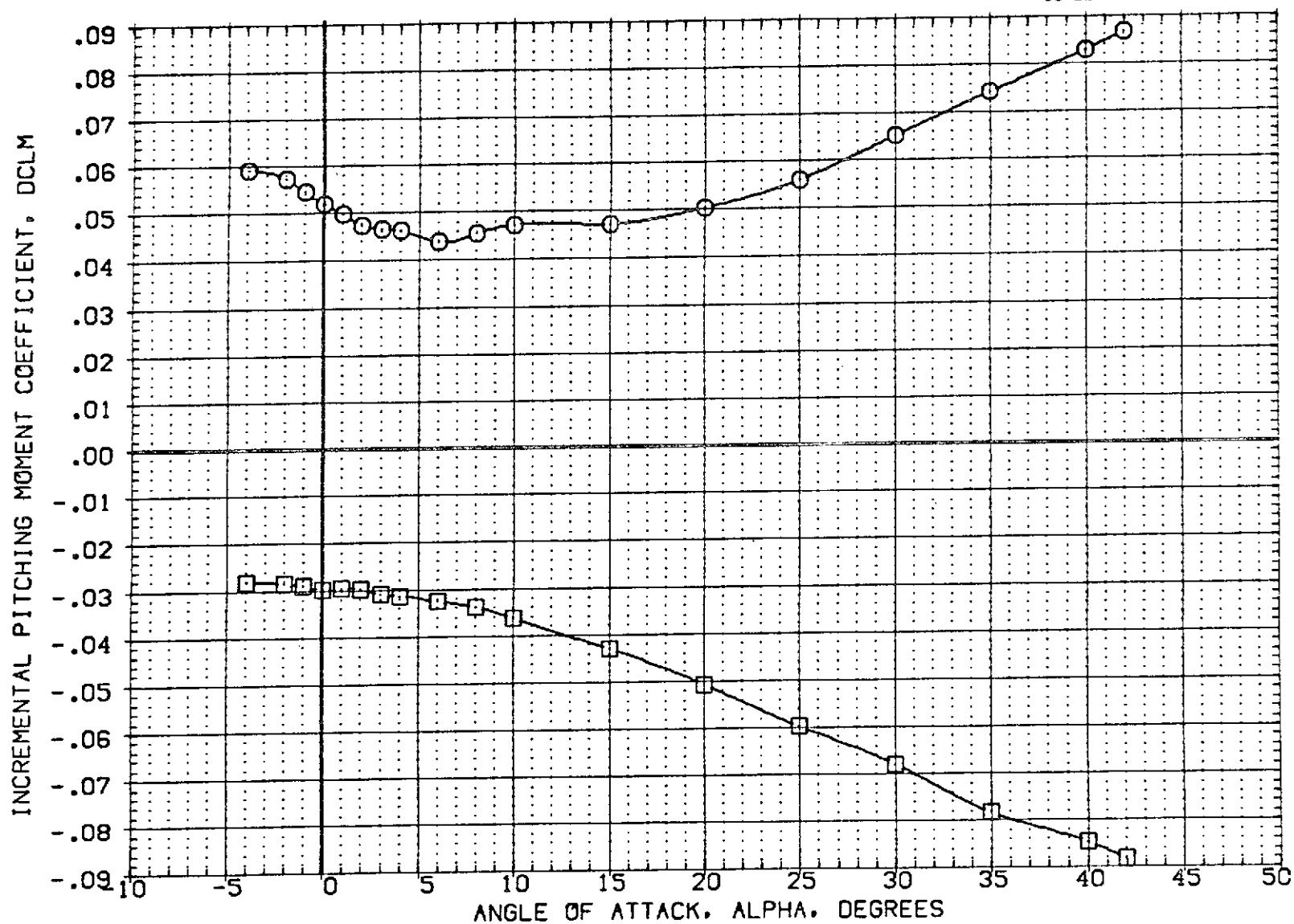


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(002012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(002011)	0A20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
-40.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
15.000	16.300	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

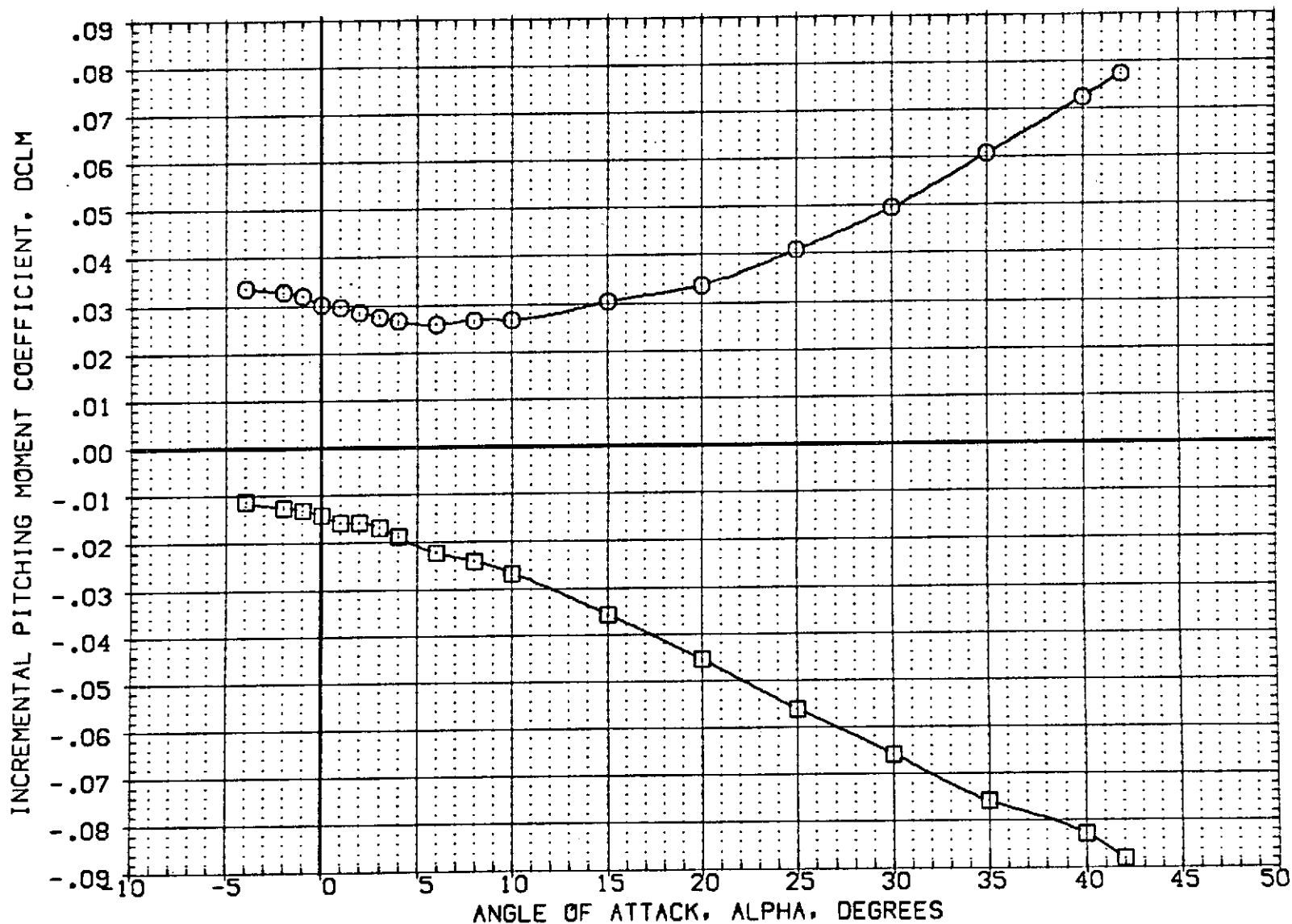


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(002012)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(002011)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DELVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
-10.000	-11.700	54.920	.000	SREF	2690.0000	SO.FT.
15.000	16.300	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRRP	1108.9500	IN.
				YMRRP	.0000	IN.
				ZMRRP	375.0000	IN.
				SCALE	1.0000	SCALE

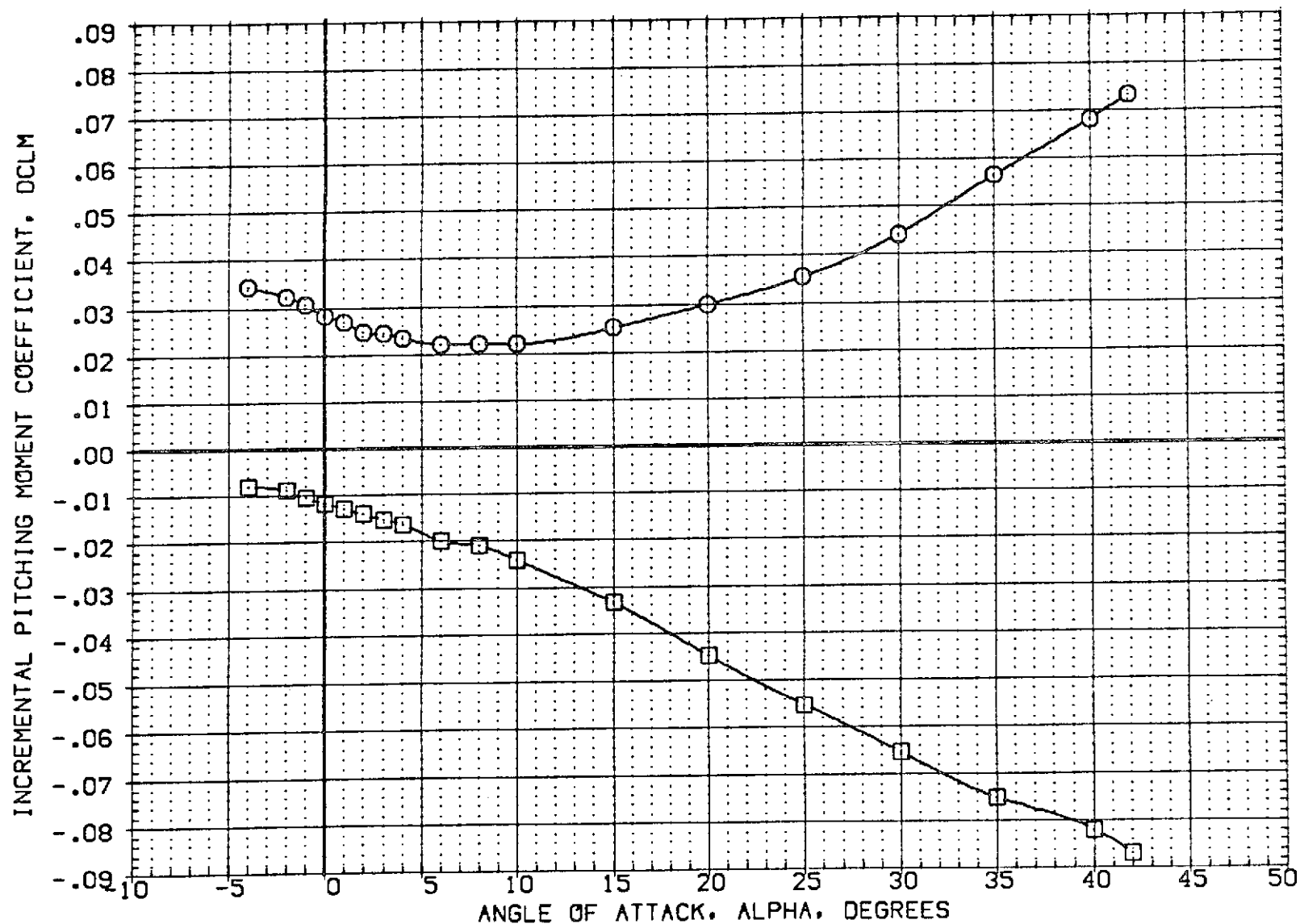


FIG 5 ELEVON EFFECTIVENESS (BASE-LINE/ELEVON DEFL = 0 DEGS)  
(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON
.000	-11.700	54.920	.000
.000	.000	54.920	.000
.000	16.300	54.920	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	1.0000	SCALE

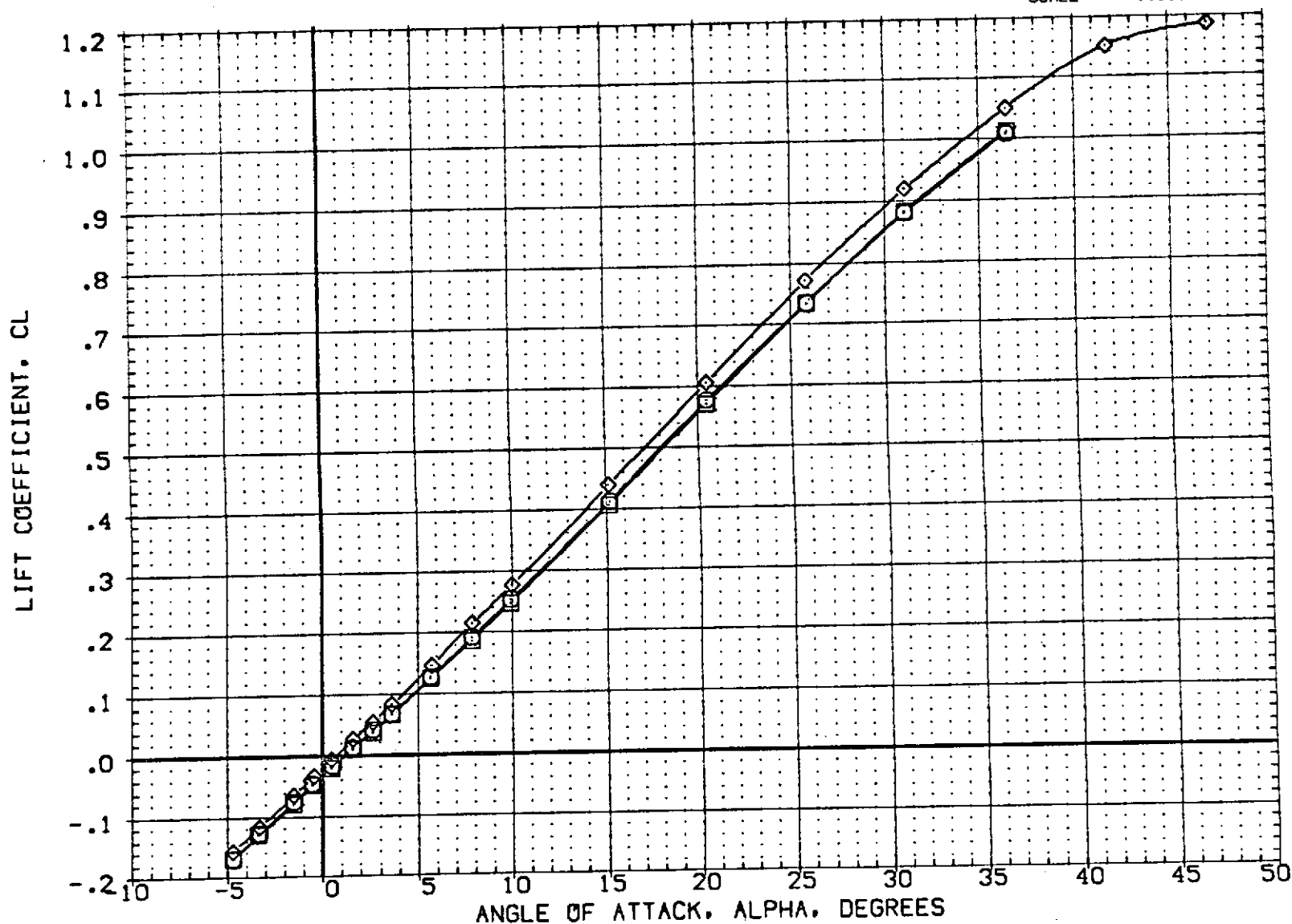


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	SOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

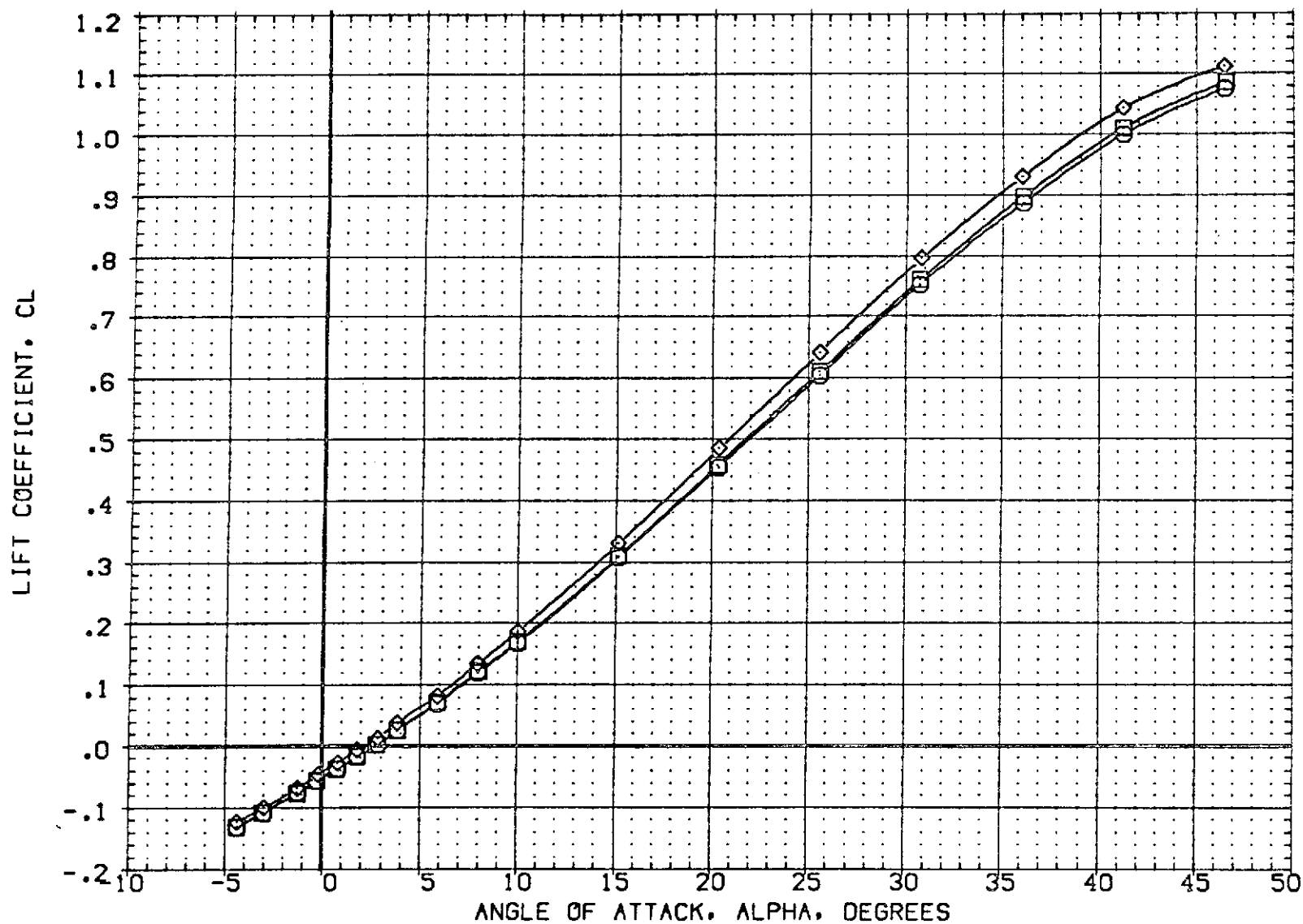


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

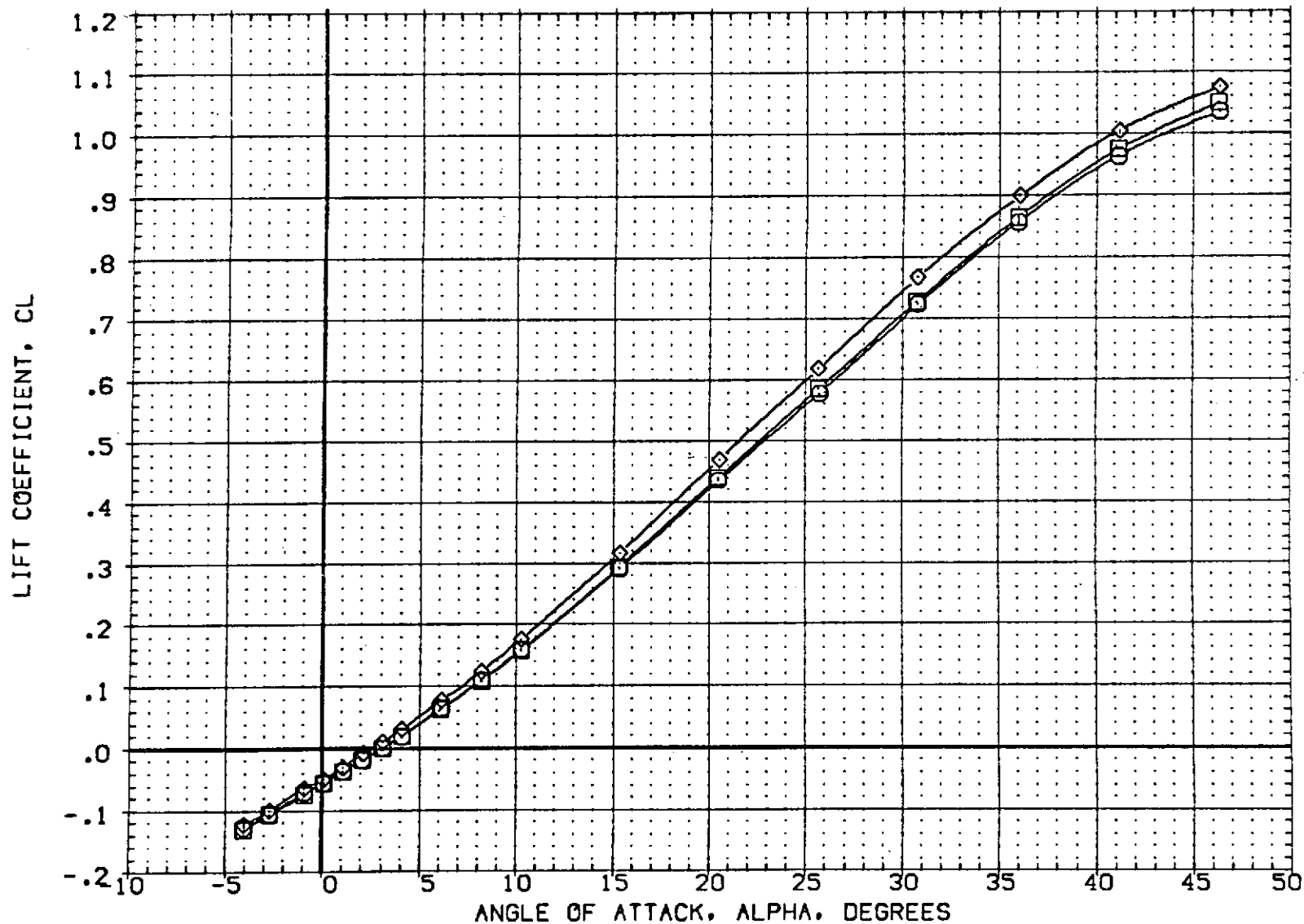


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

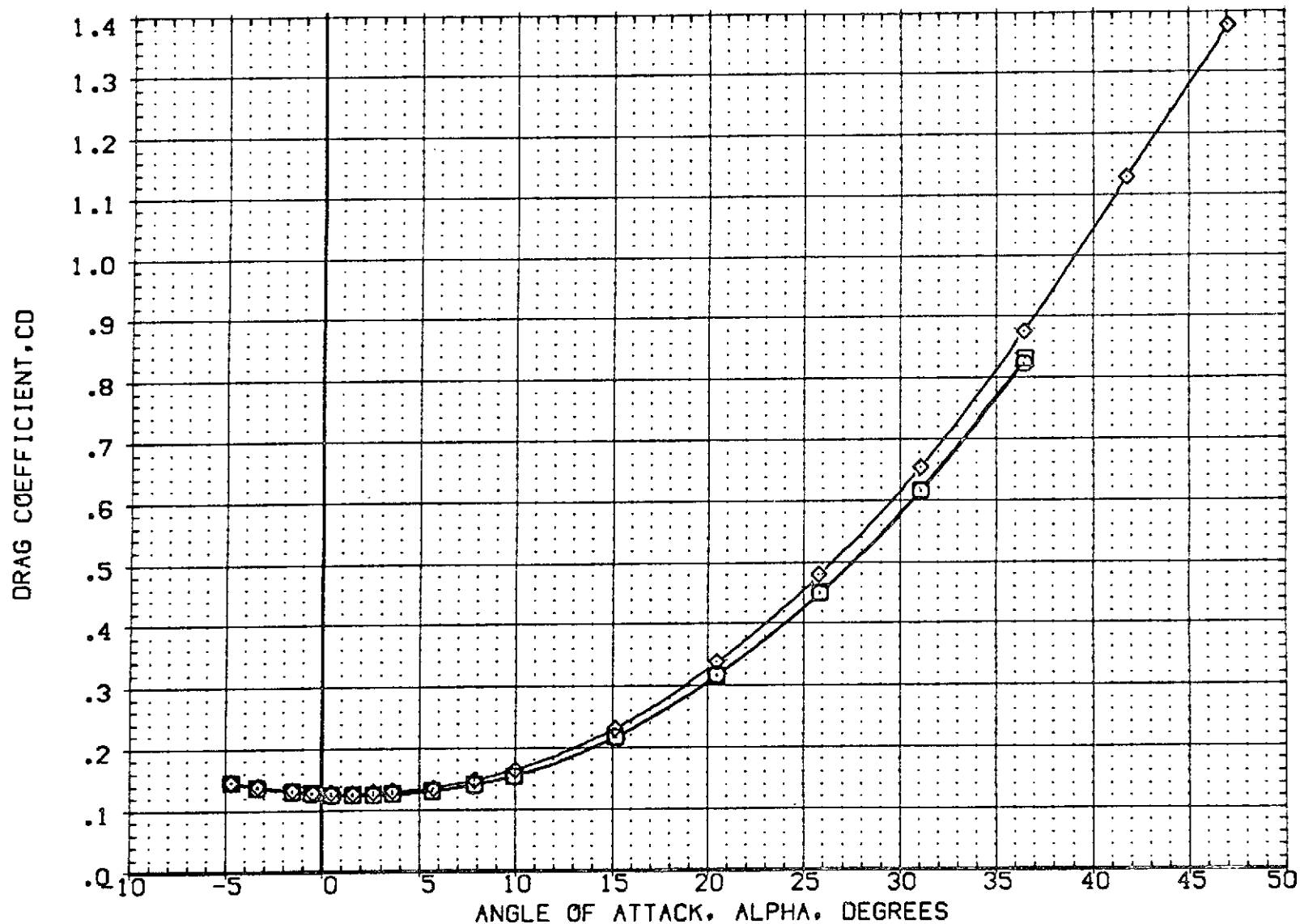


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

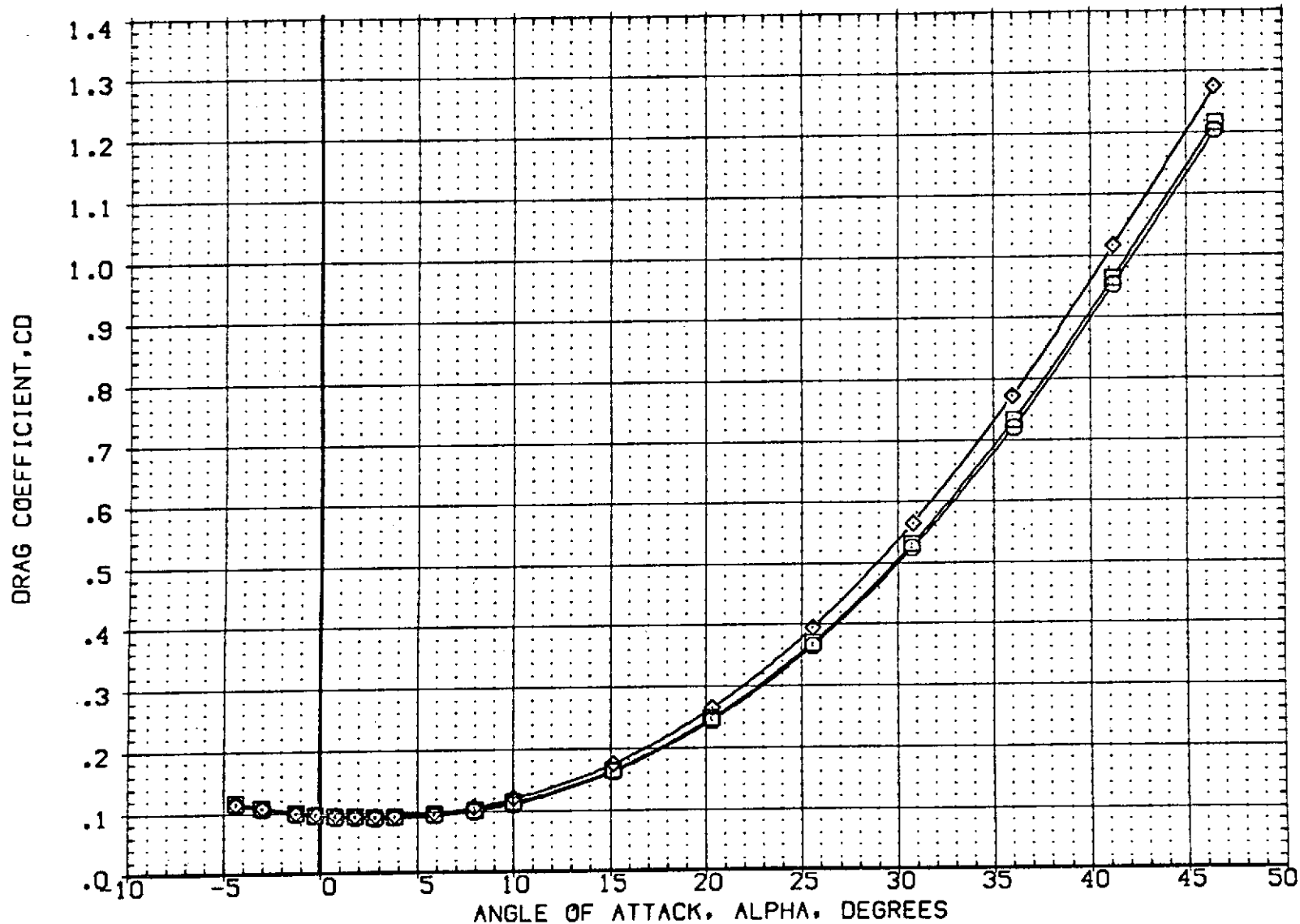


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)  
(B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[KQ2015]	OA20C LRC UPVT 1057 -140A/B ORBITER
[KQ2016]	OA20C LRC UPVT 1057 -140A/B ORBITER
[KQ2010]	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

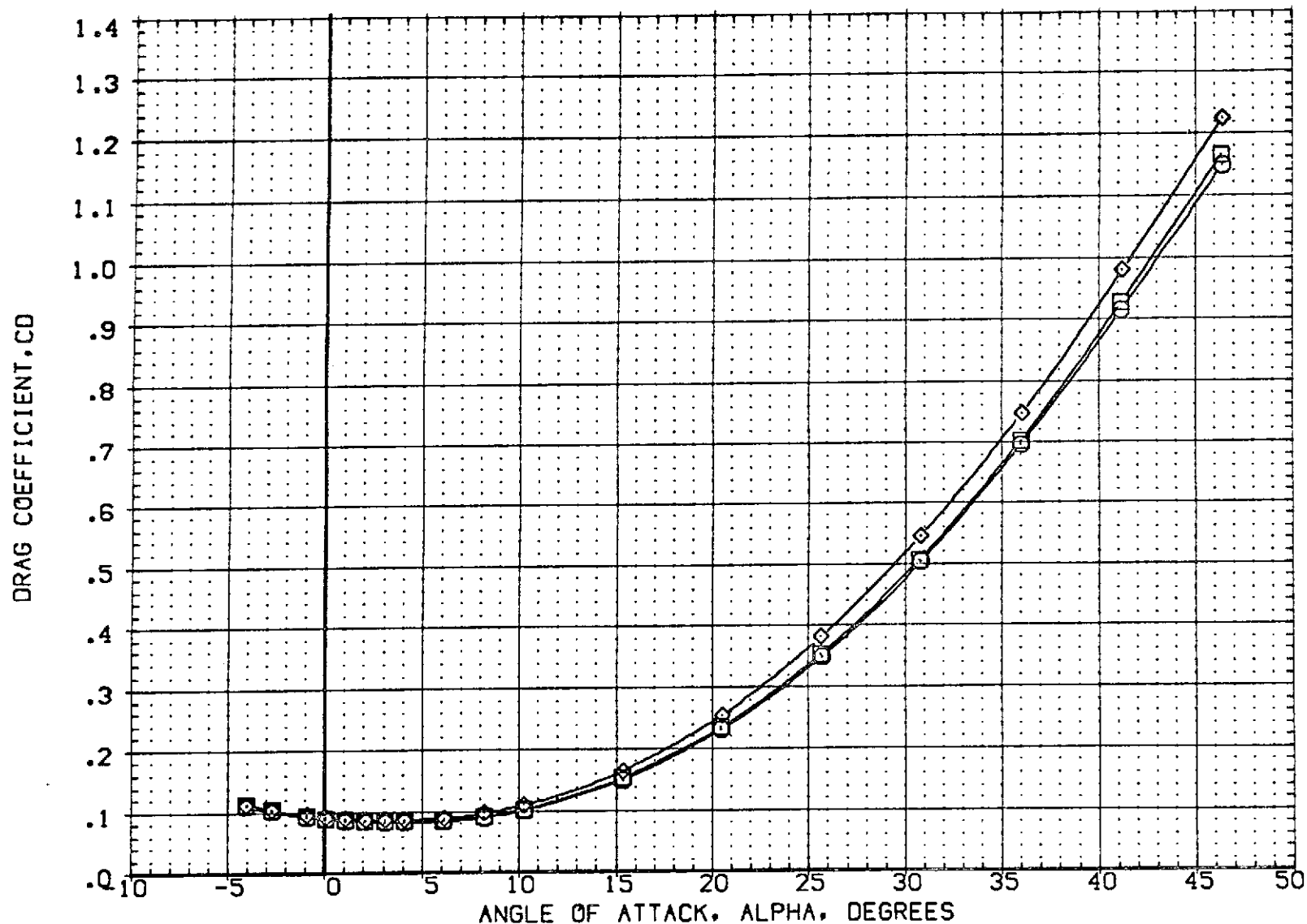


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[KQ2015]	OA20C LRC UPVT 1057 -140A/B ORBITER
[KQ2016]	OA20C LRC UPVT 1057 -140A/B ORBITER
[KQ2010]	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

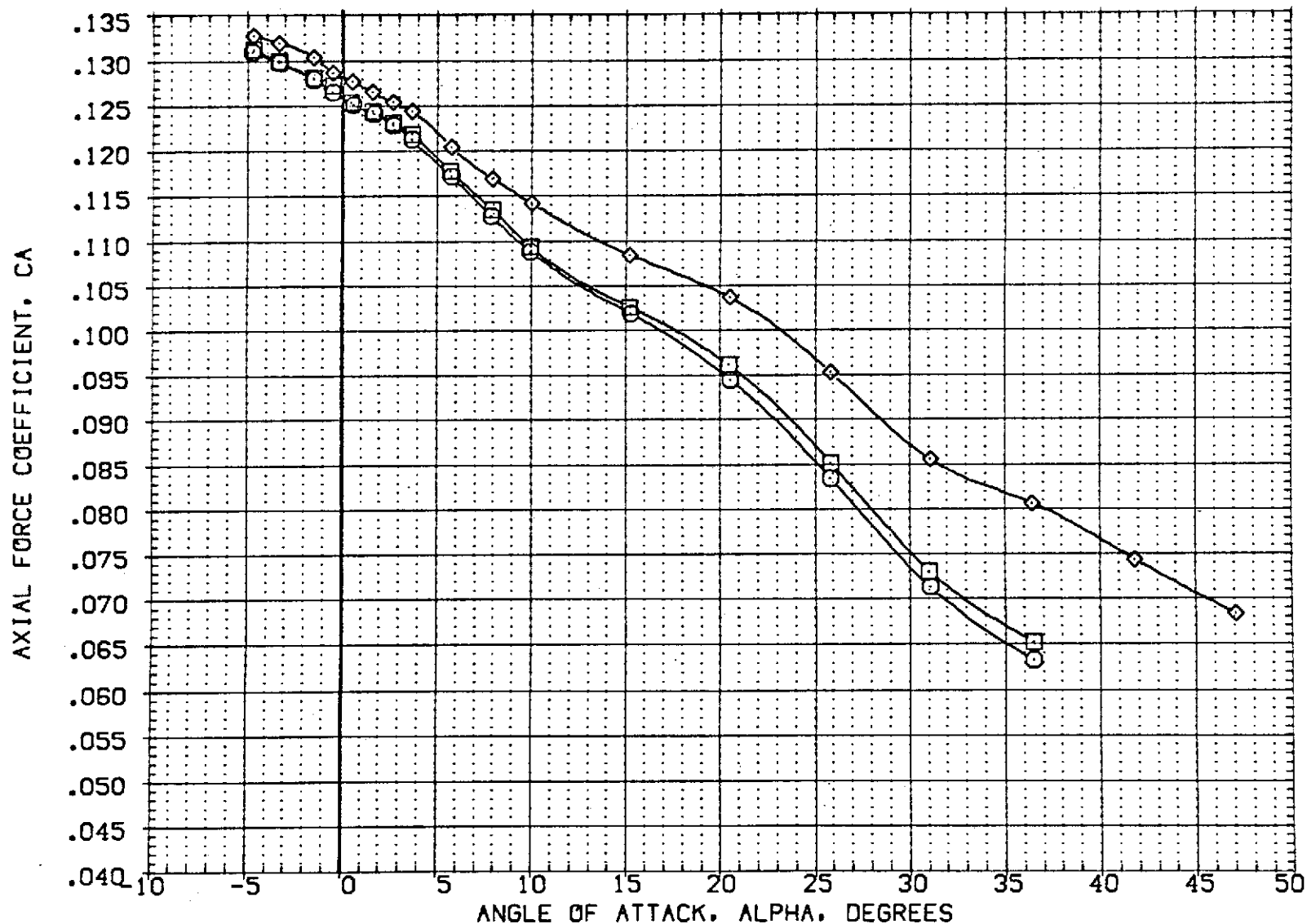


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015) ○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016) □	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010) ◇	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

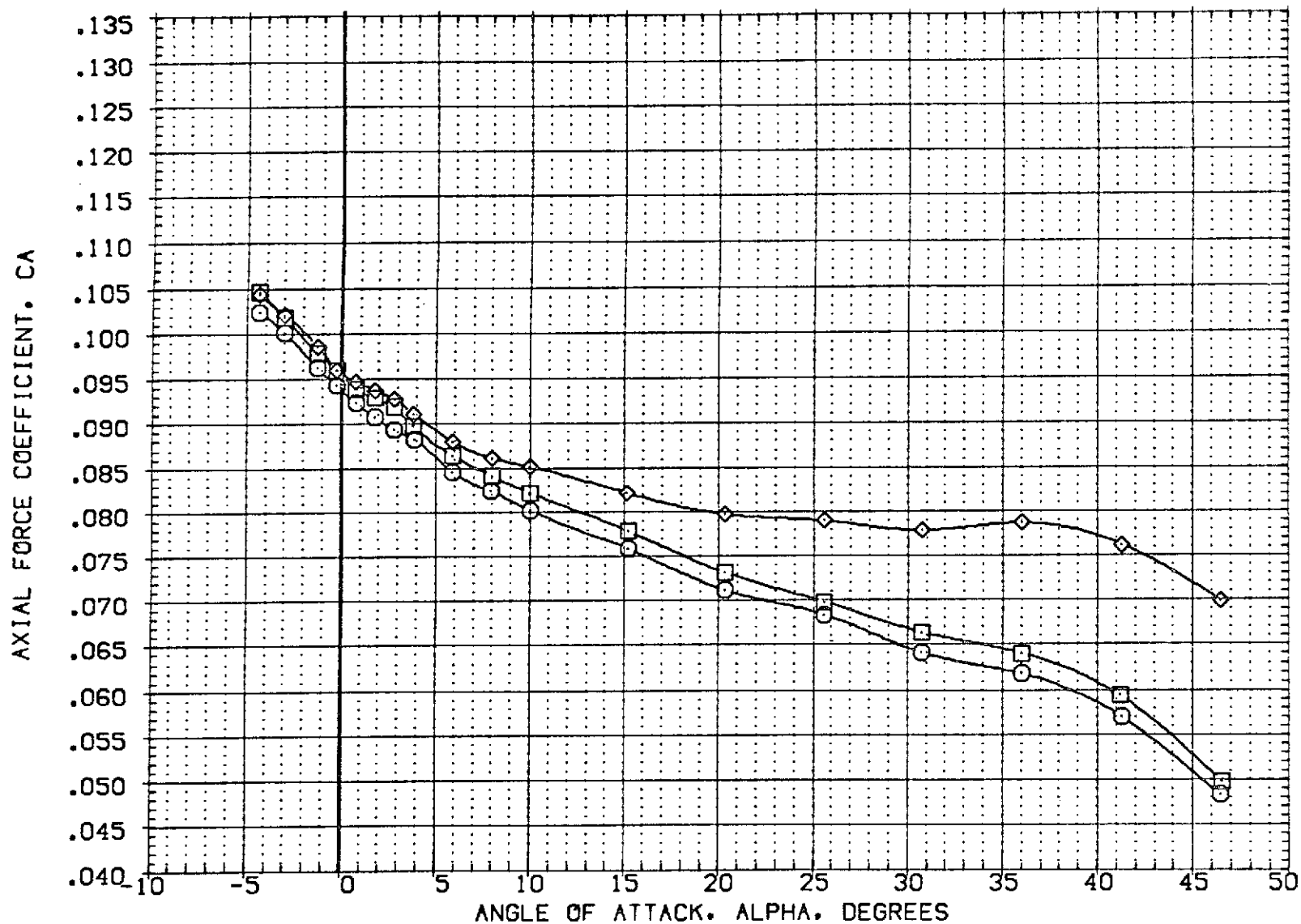


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

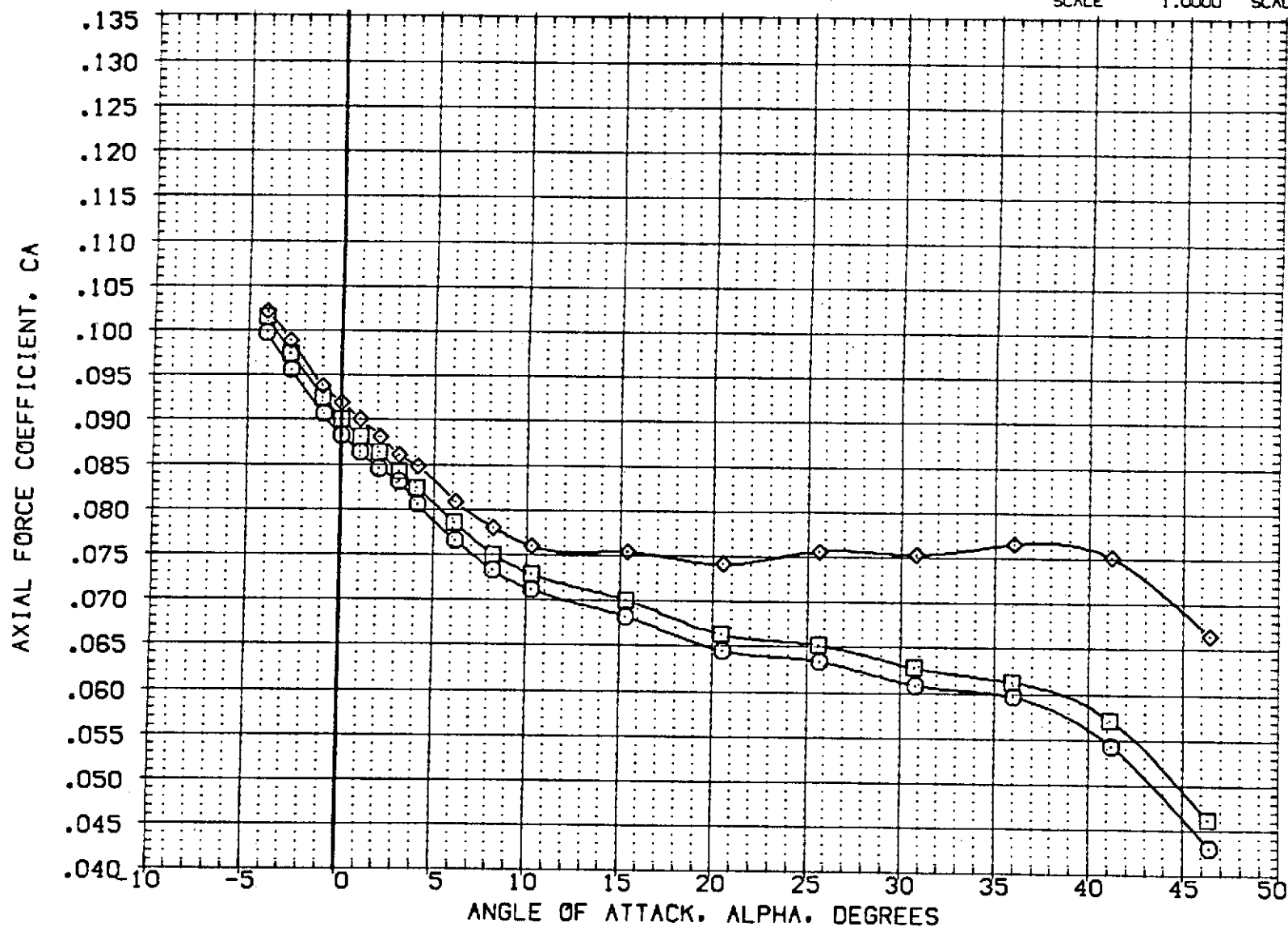


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	.000	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

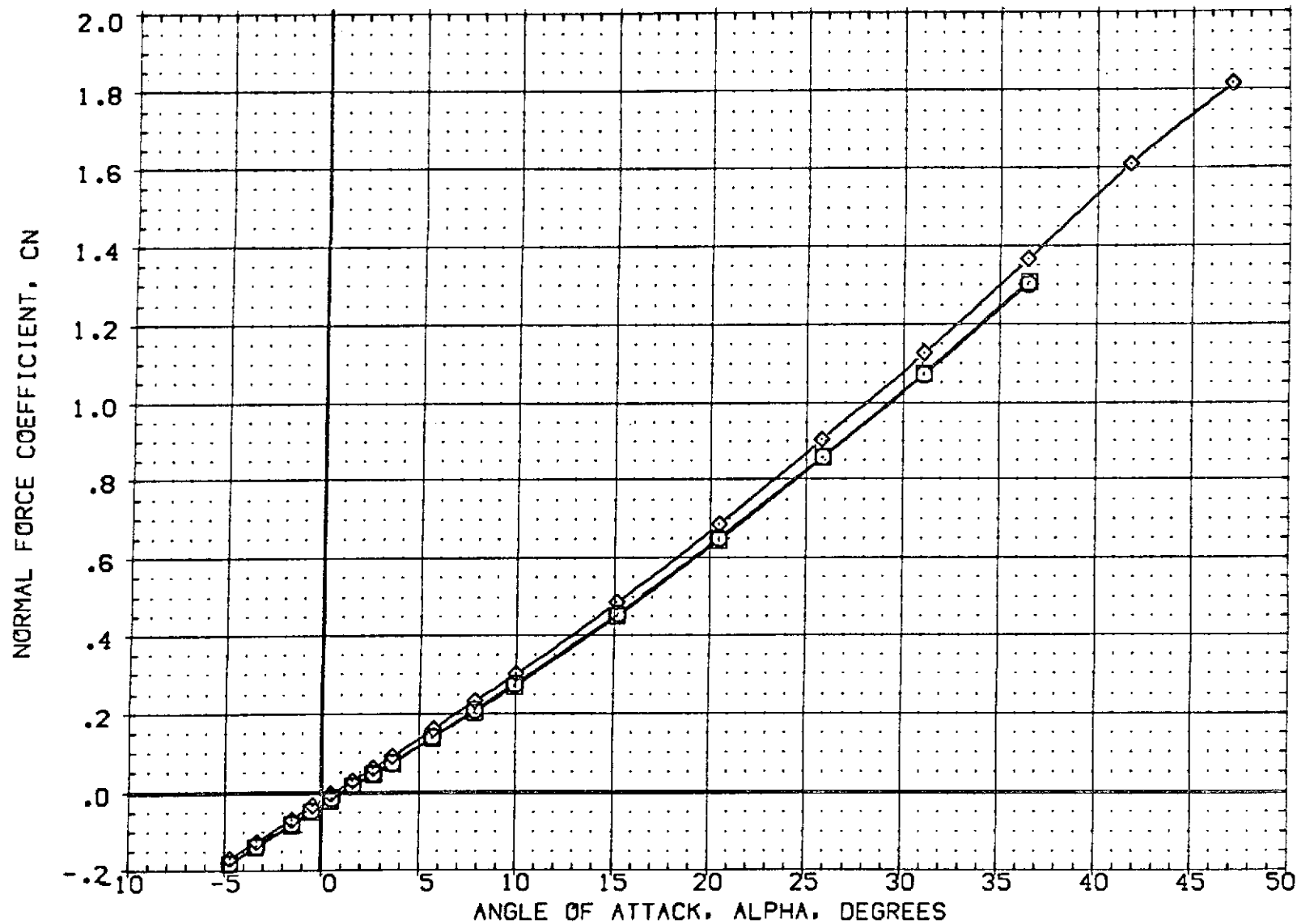


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{K02015}	0A20C LRC UPVT 1057 -140A/B ORBITER
{K02016}	0A20C LRC UPVT 1057 -140A/B ORBITER
{K02010}	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

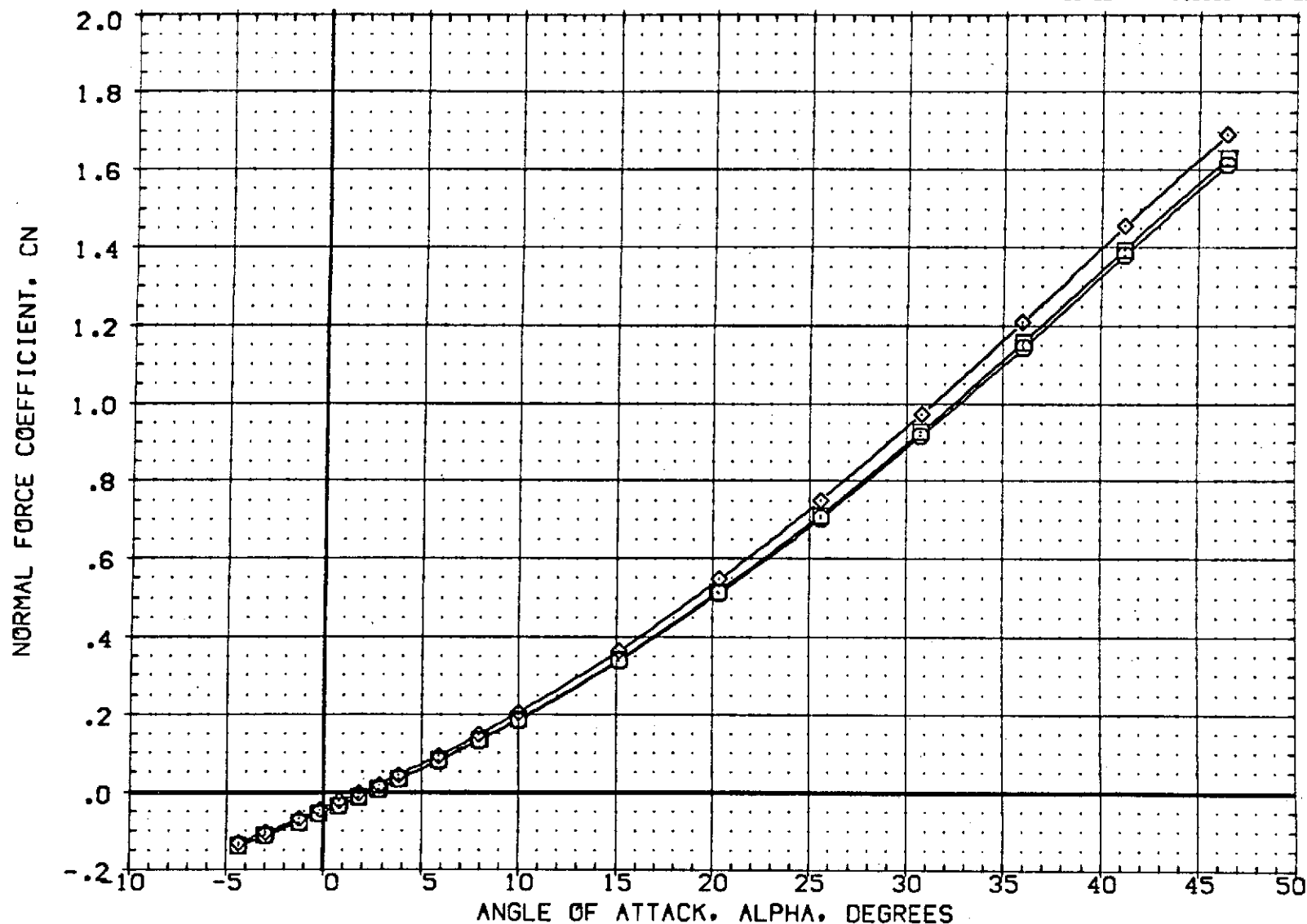


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2016)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

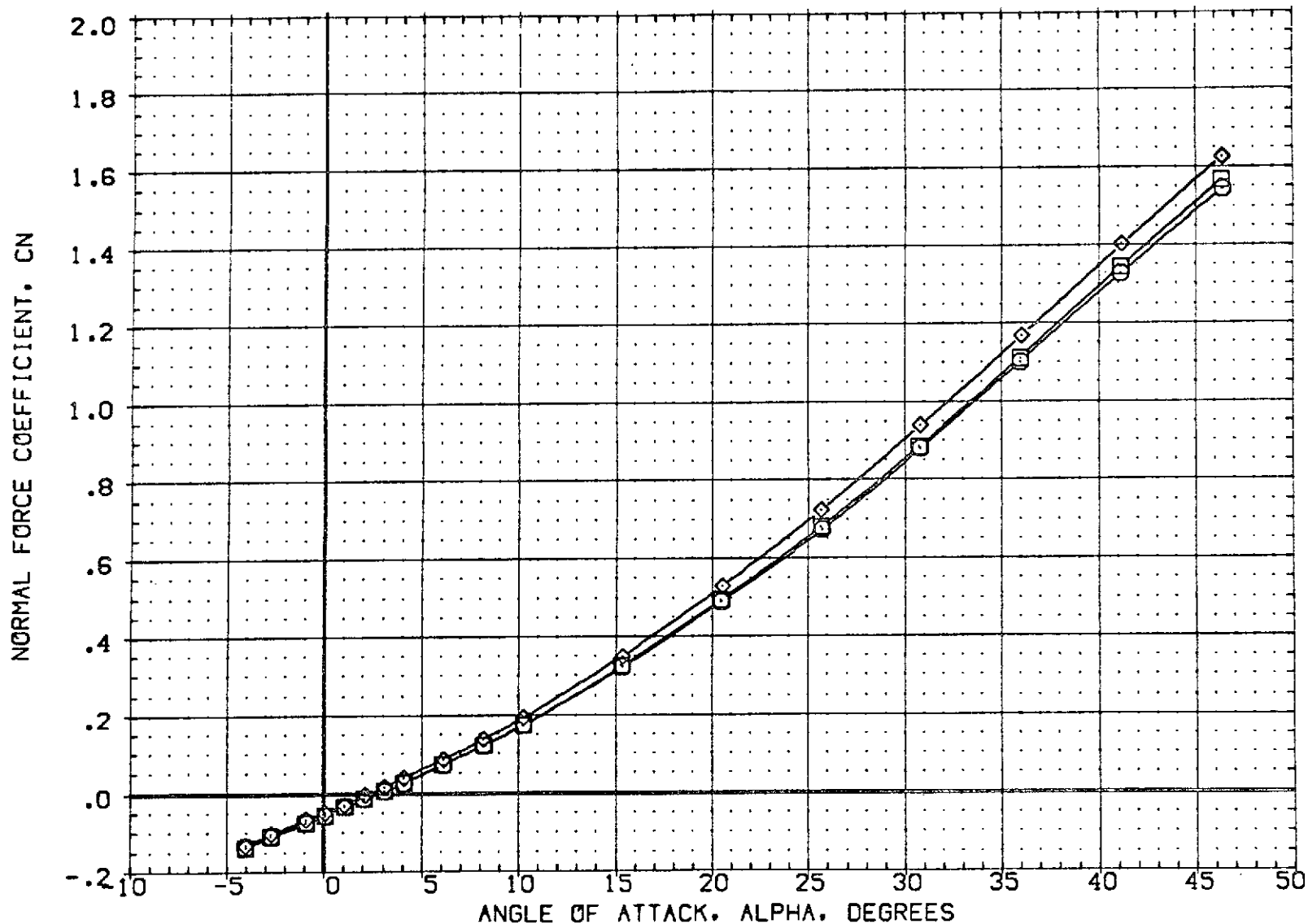


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				YMRP 1076.4800 IN.
				ZMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

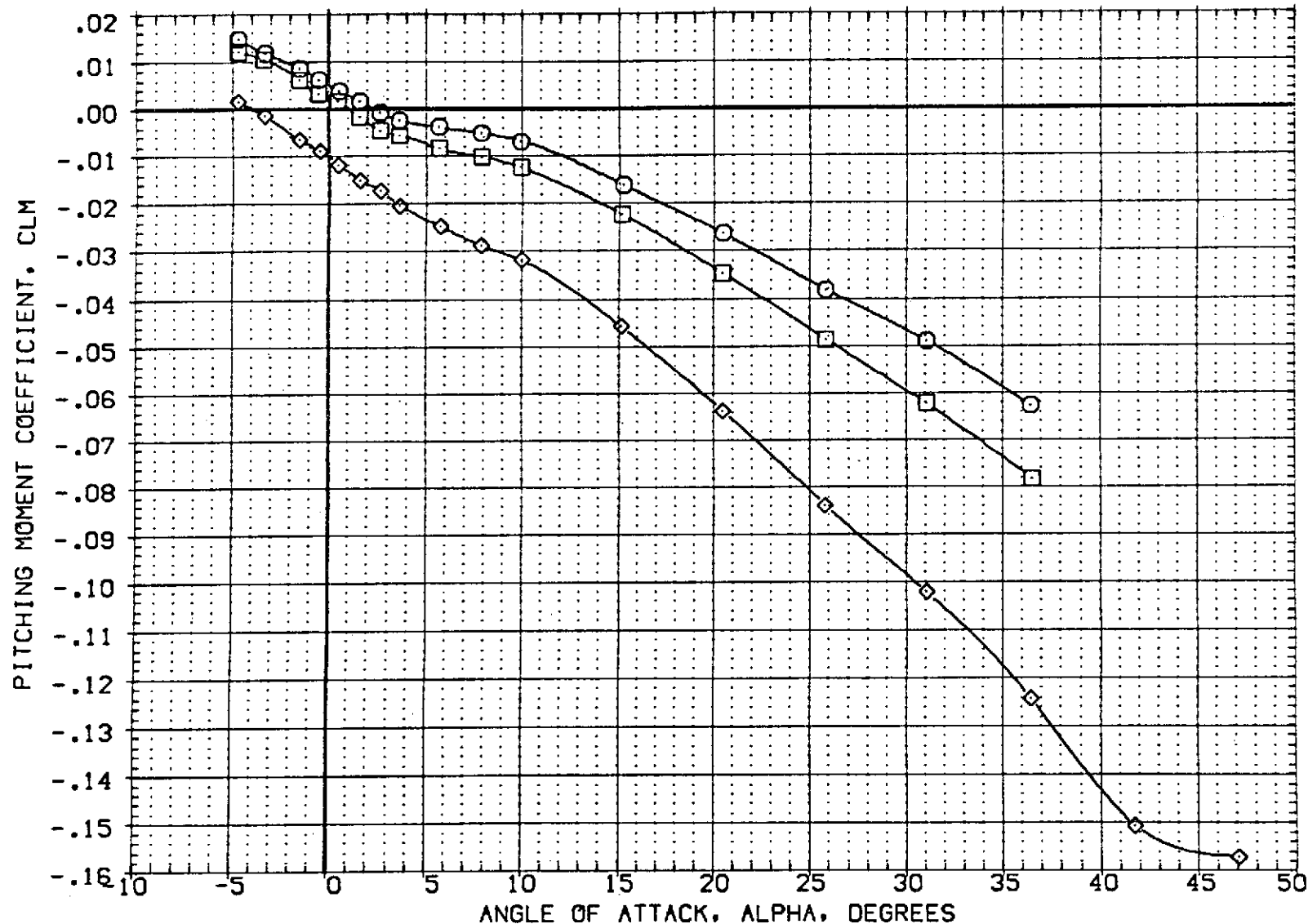


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2016)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

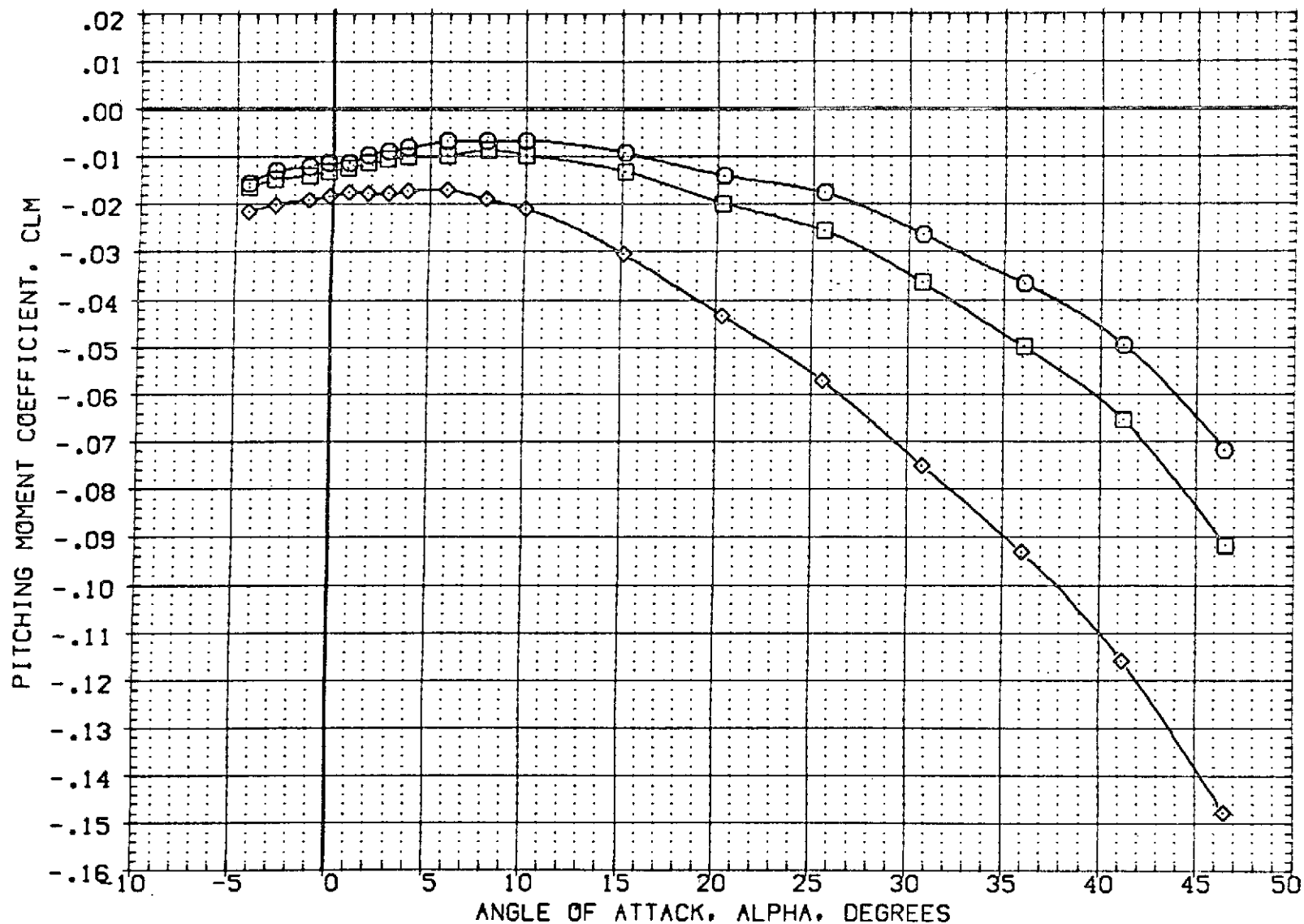


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	QA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	QA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	QA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRF 1076.4800 IN.
				YMRF .0000 IN.
				ZMRF 375.0000 IN.
				SCALE 1.0000 SCALE

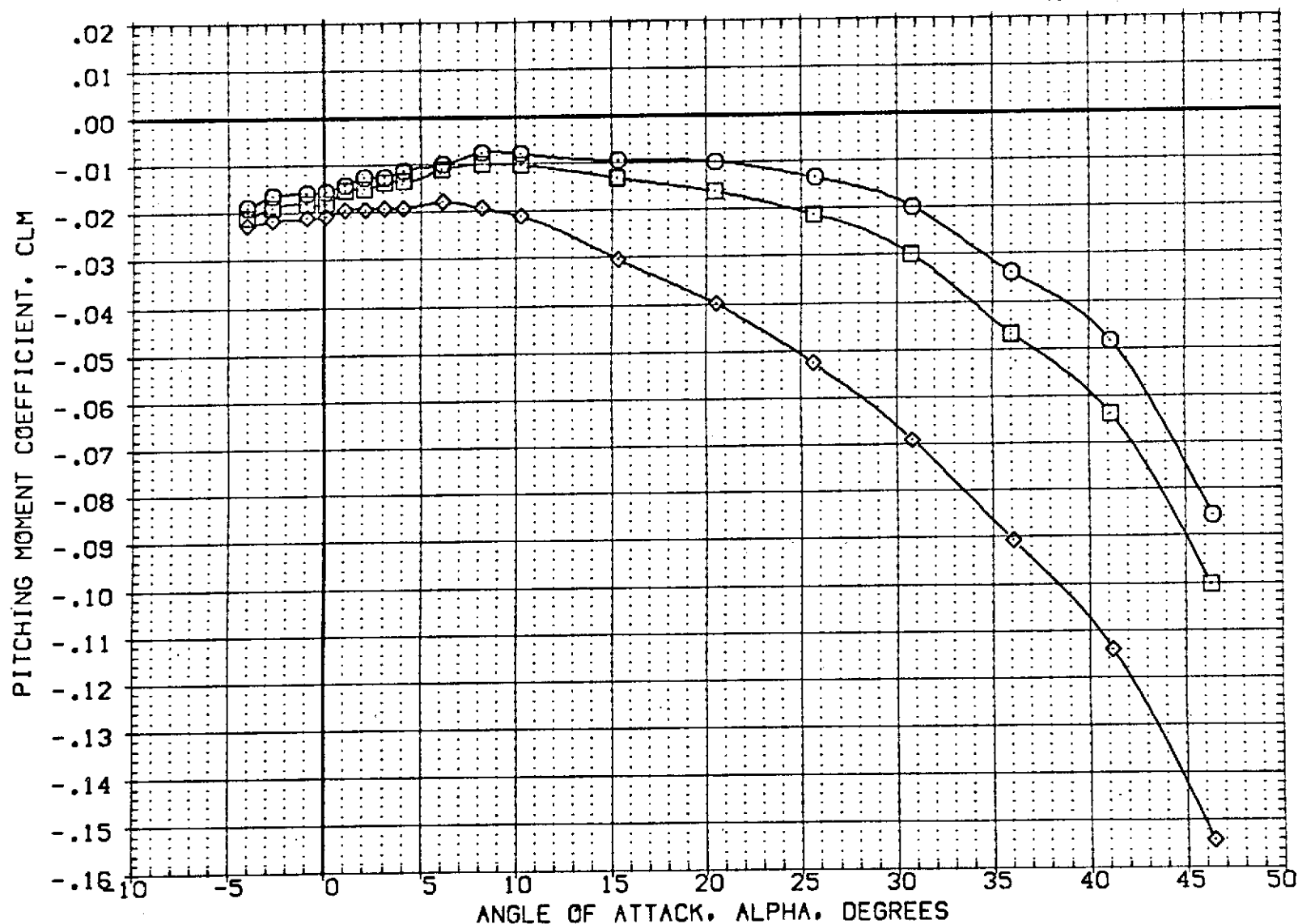


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

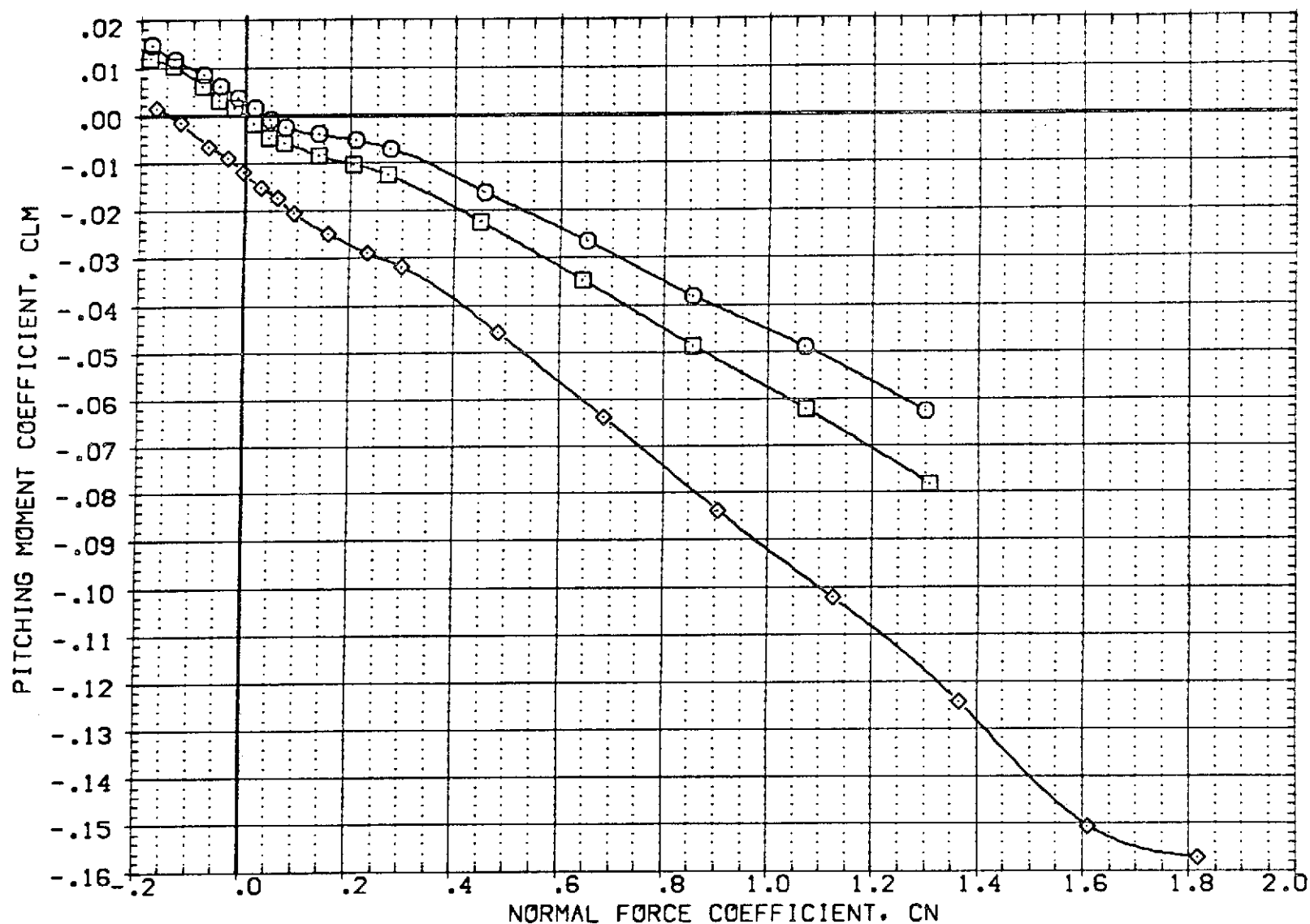


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF	476.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

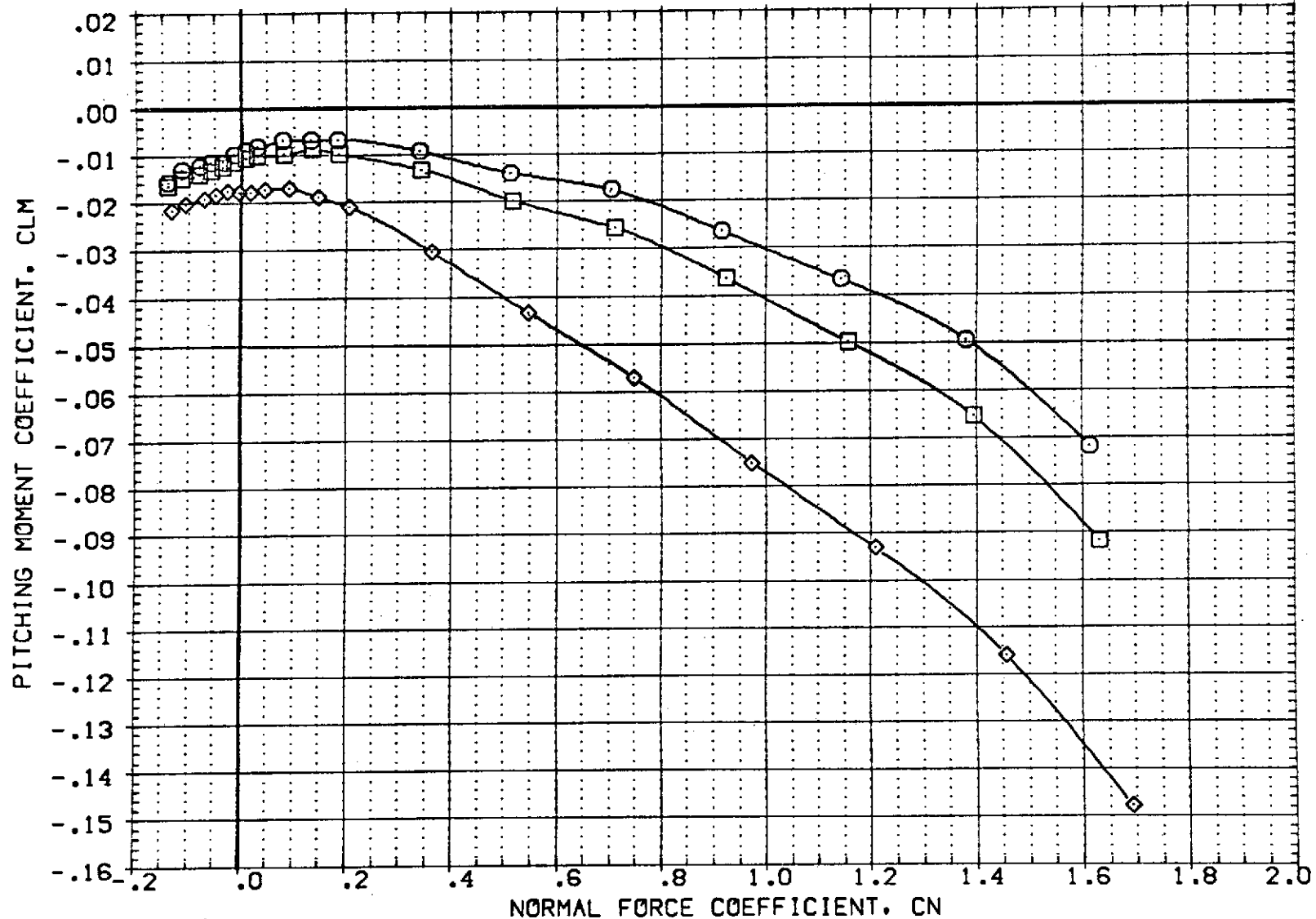


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)  
(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

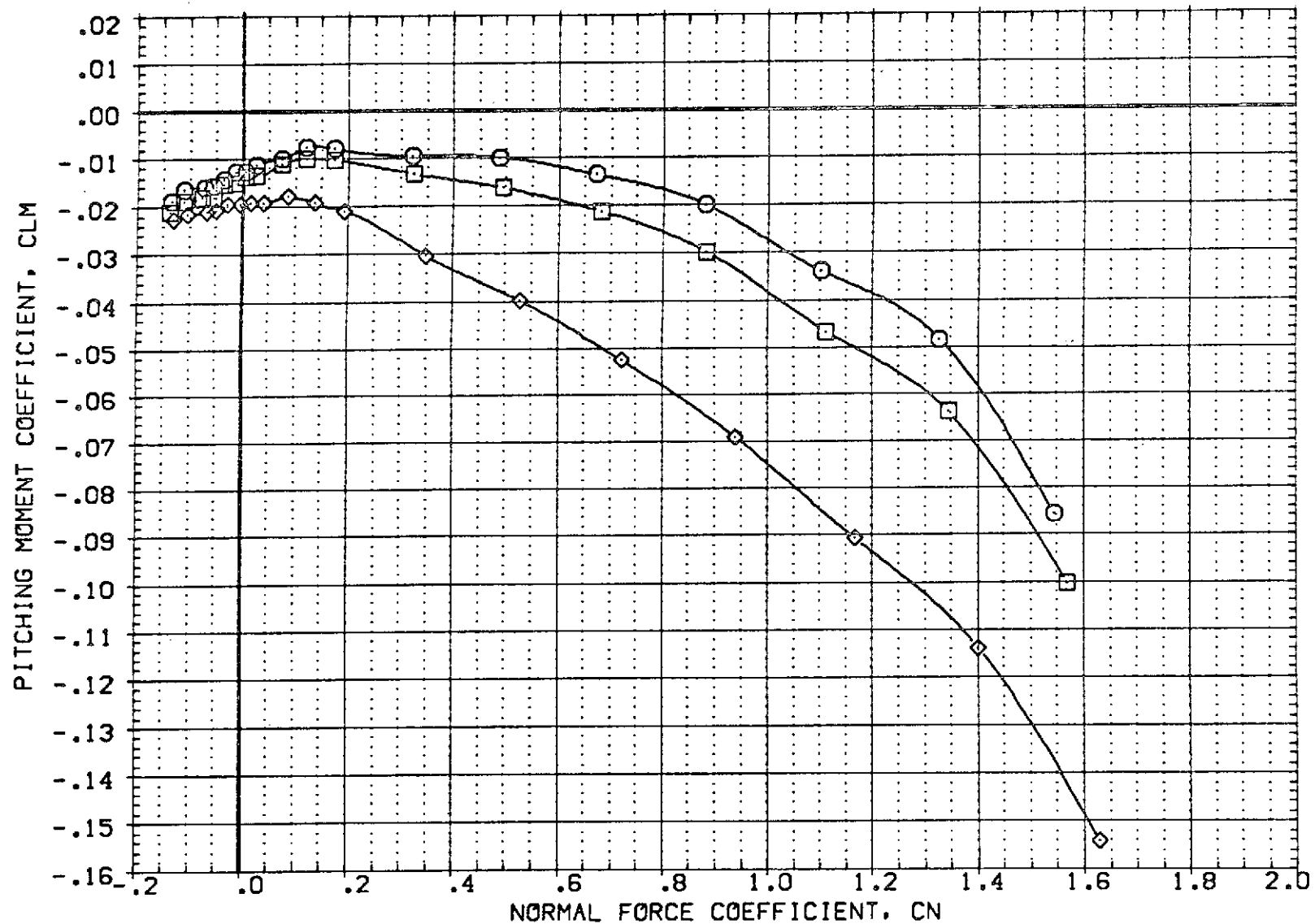


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

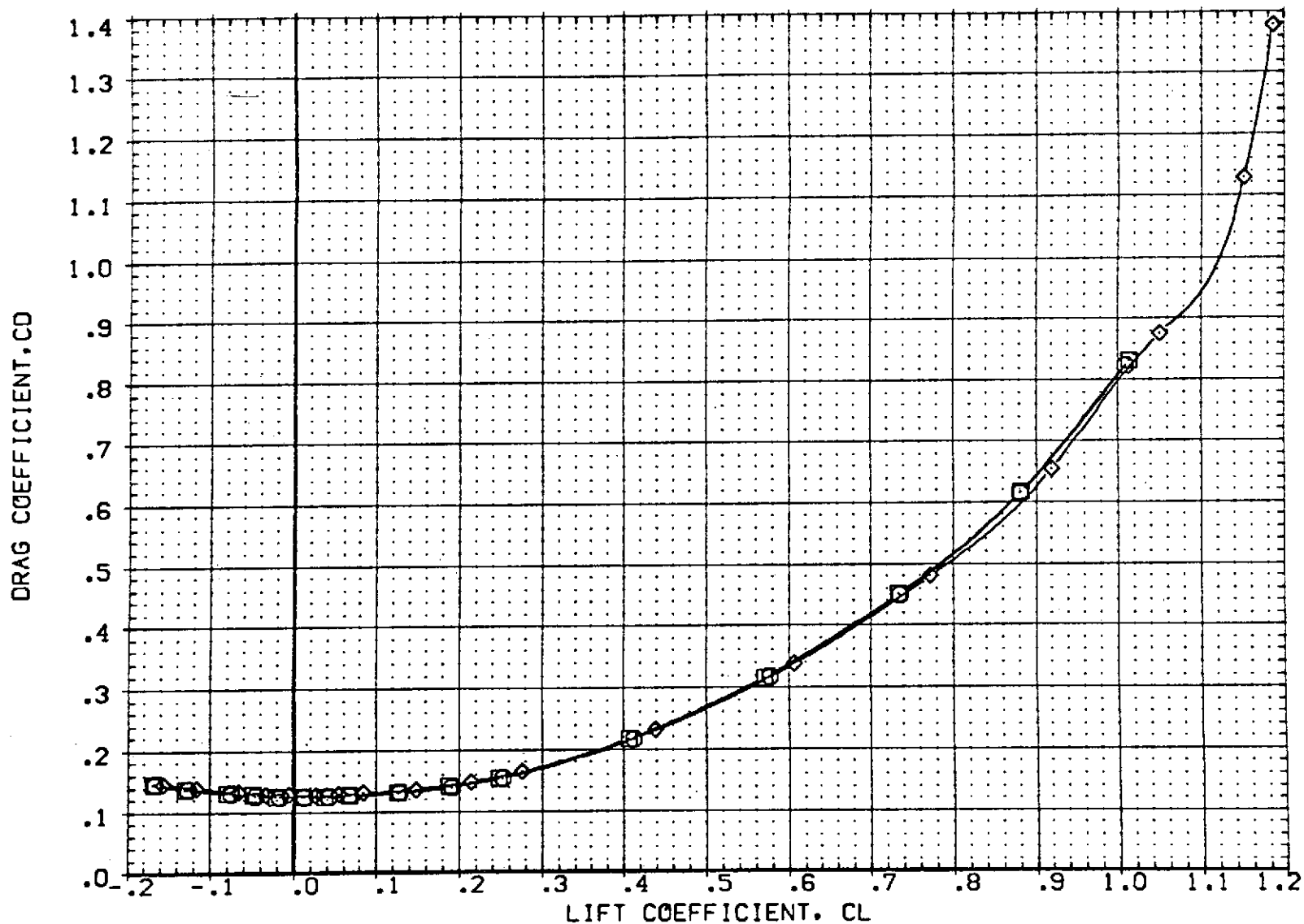


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)  
(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02016)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02010)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

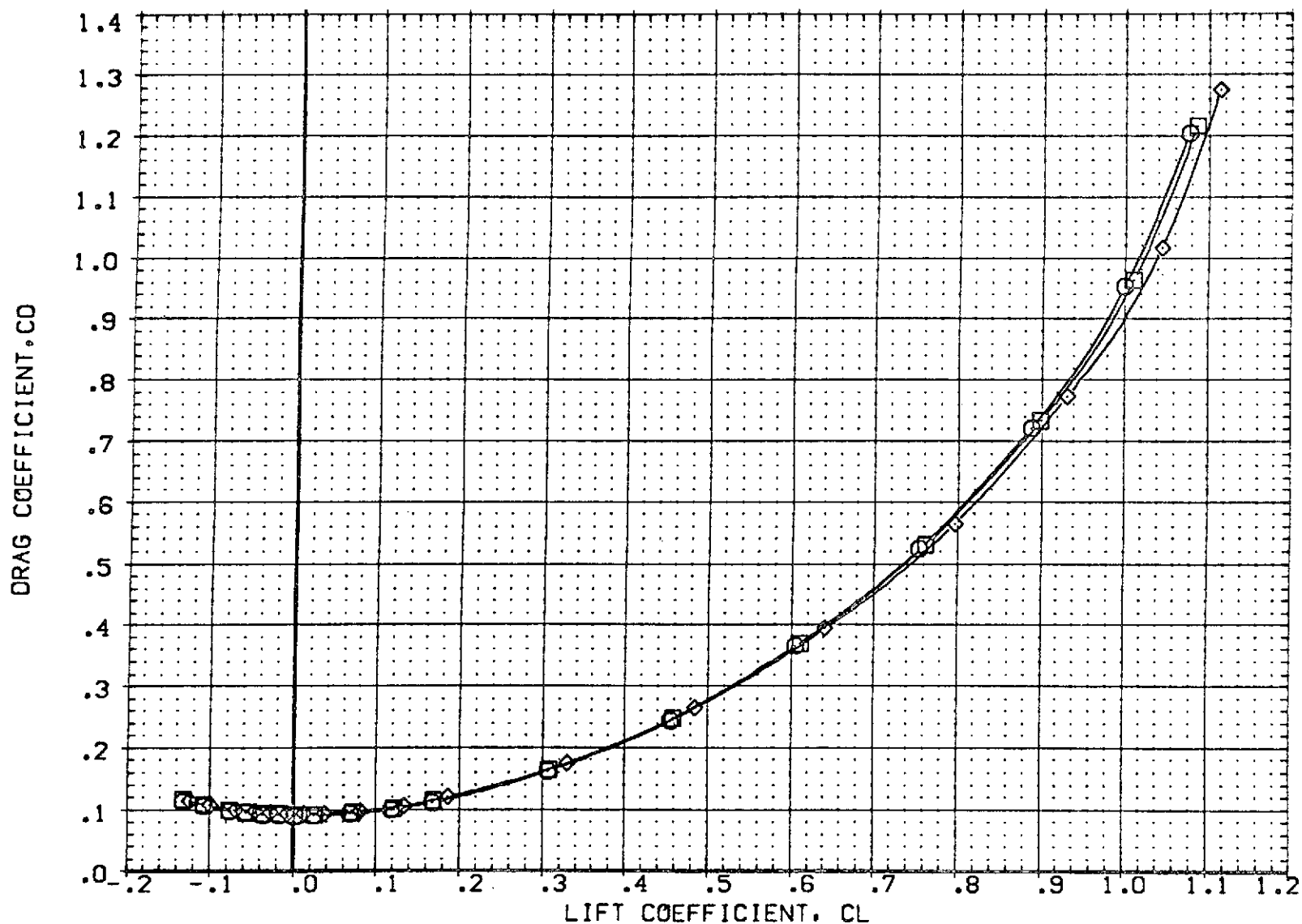


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(8)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	938.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

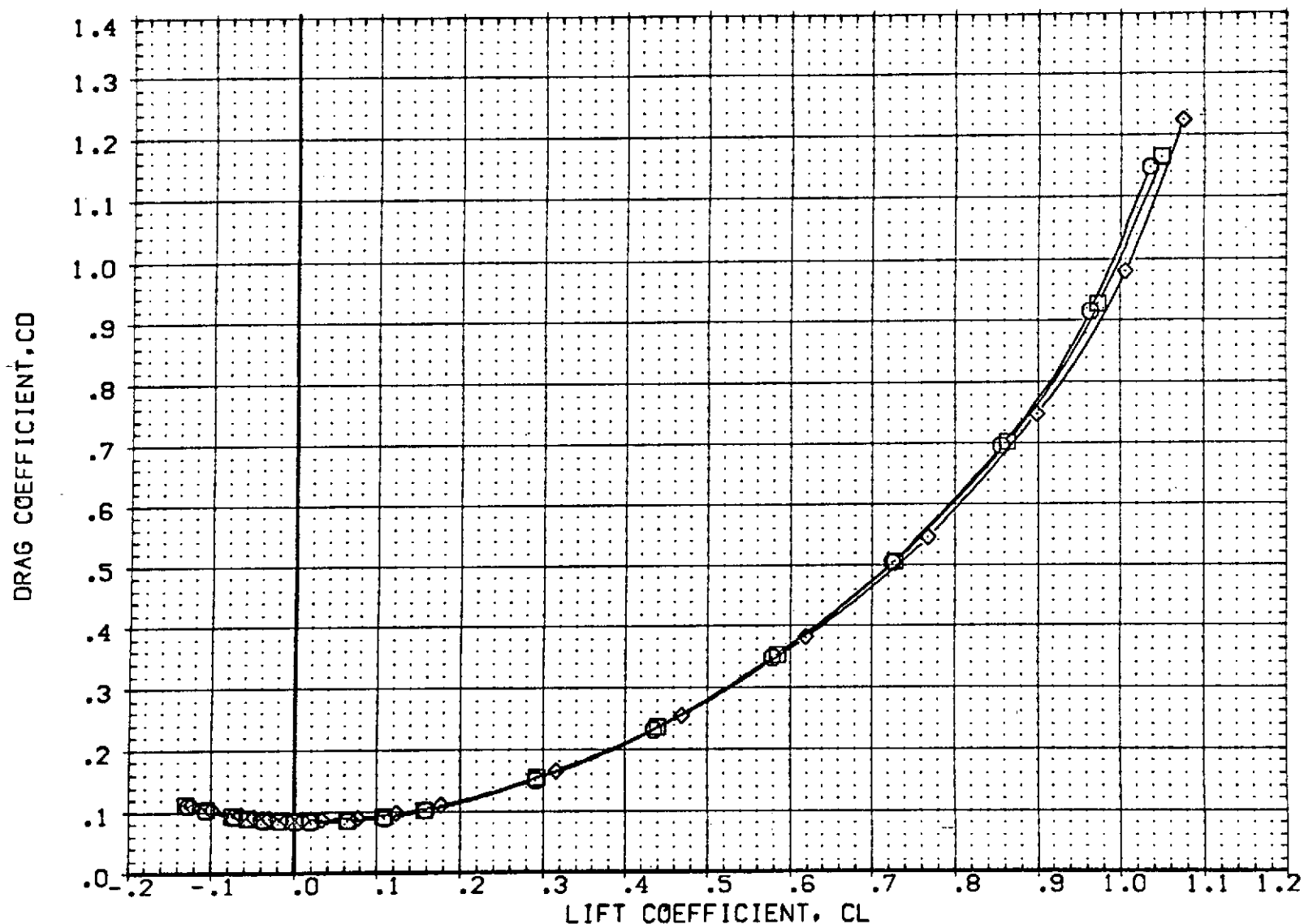


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(KQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

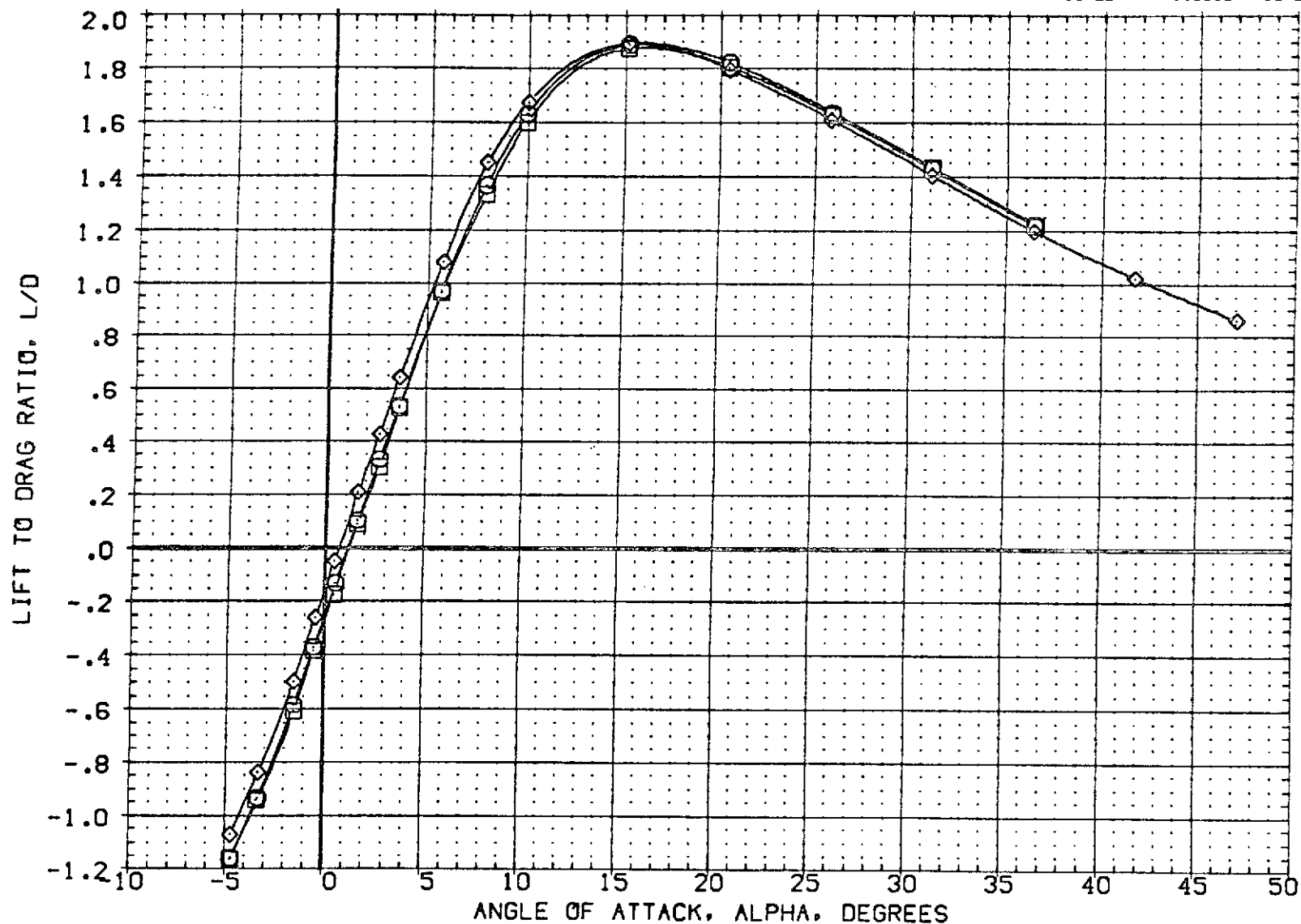


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	DA20C LRC UPWT 1057 -140A/B ORBITER
(K02016)	DA20C LRC UPWT 1057 -140A/B ORBITER
(K02010)	DA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
.000	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF	476.8117 IN.
.000	16.300	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

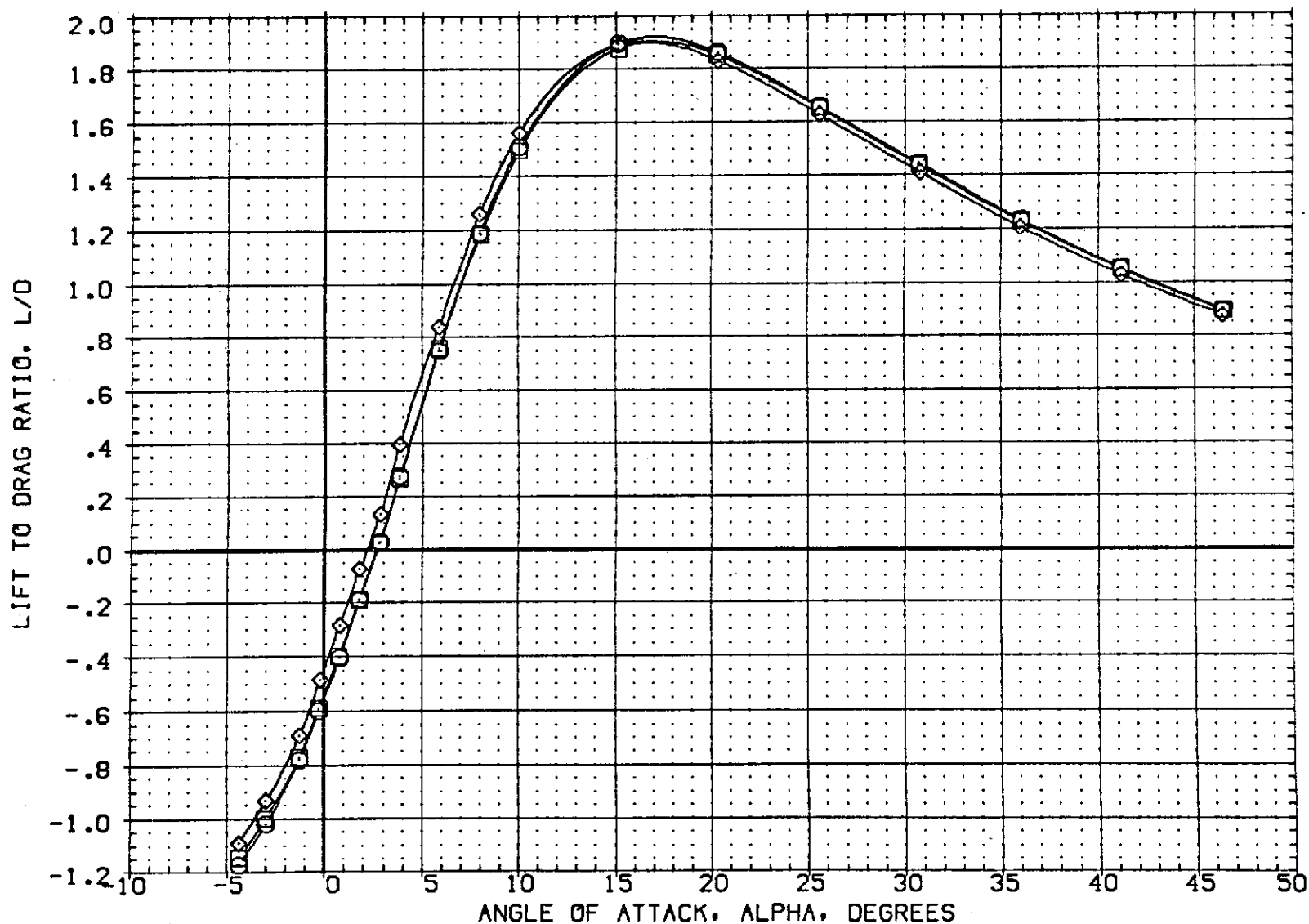


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(K02010)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

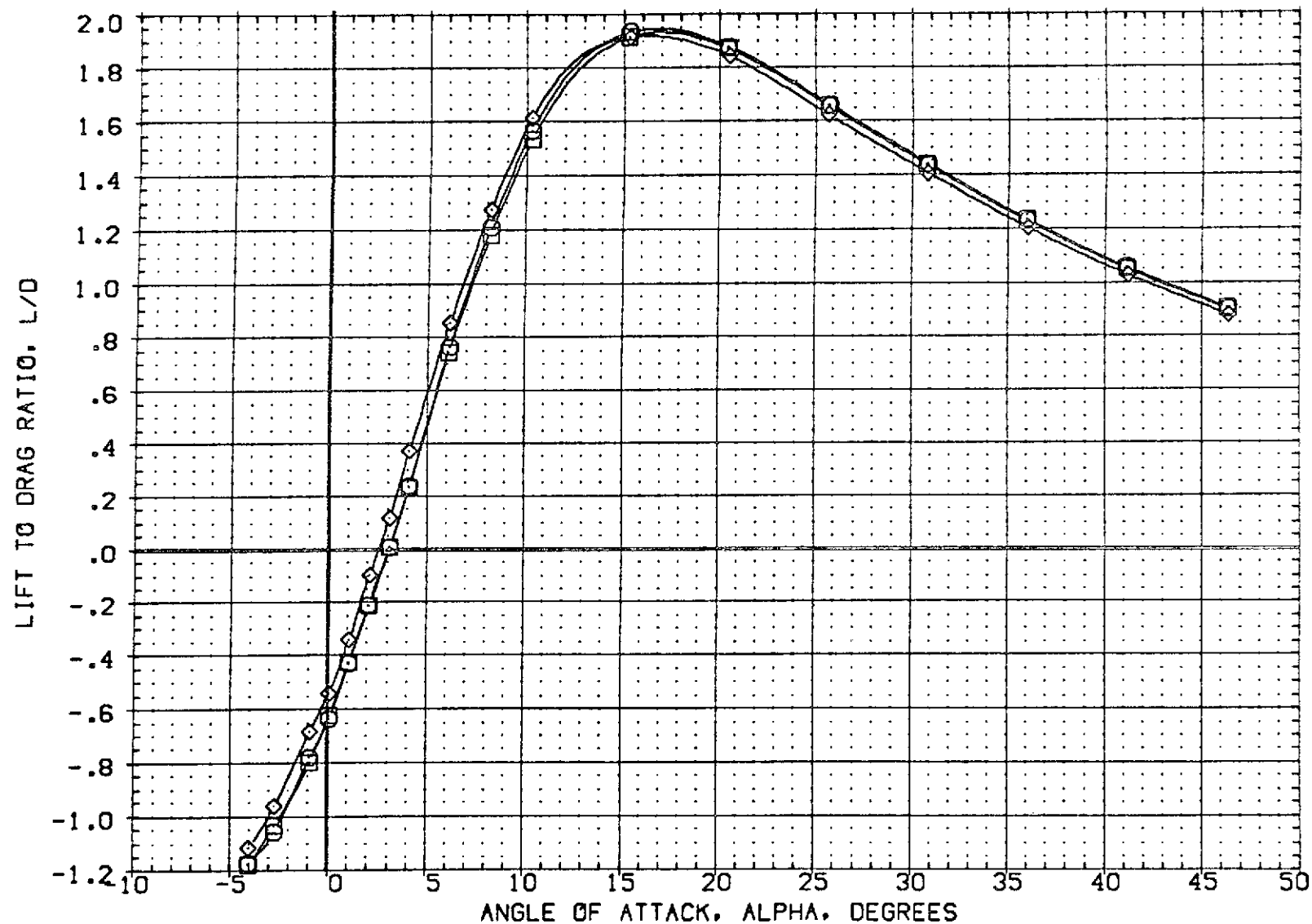


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(EQ2016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(EQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

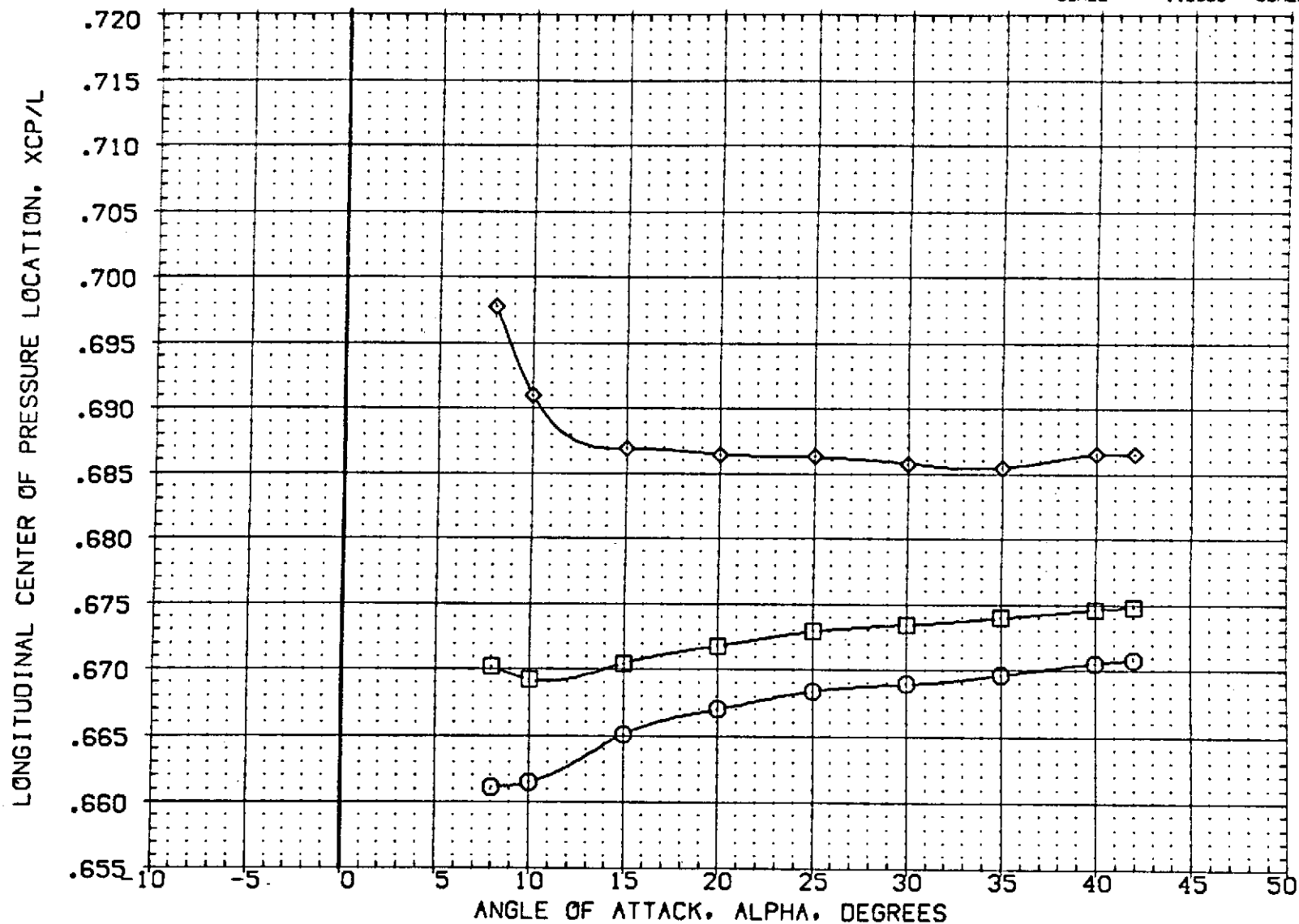


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EQ2015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(EQ2016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(EQ2010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

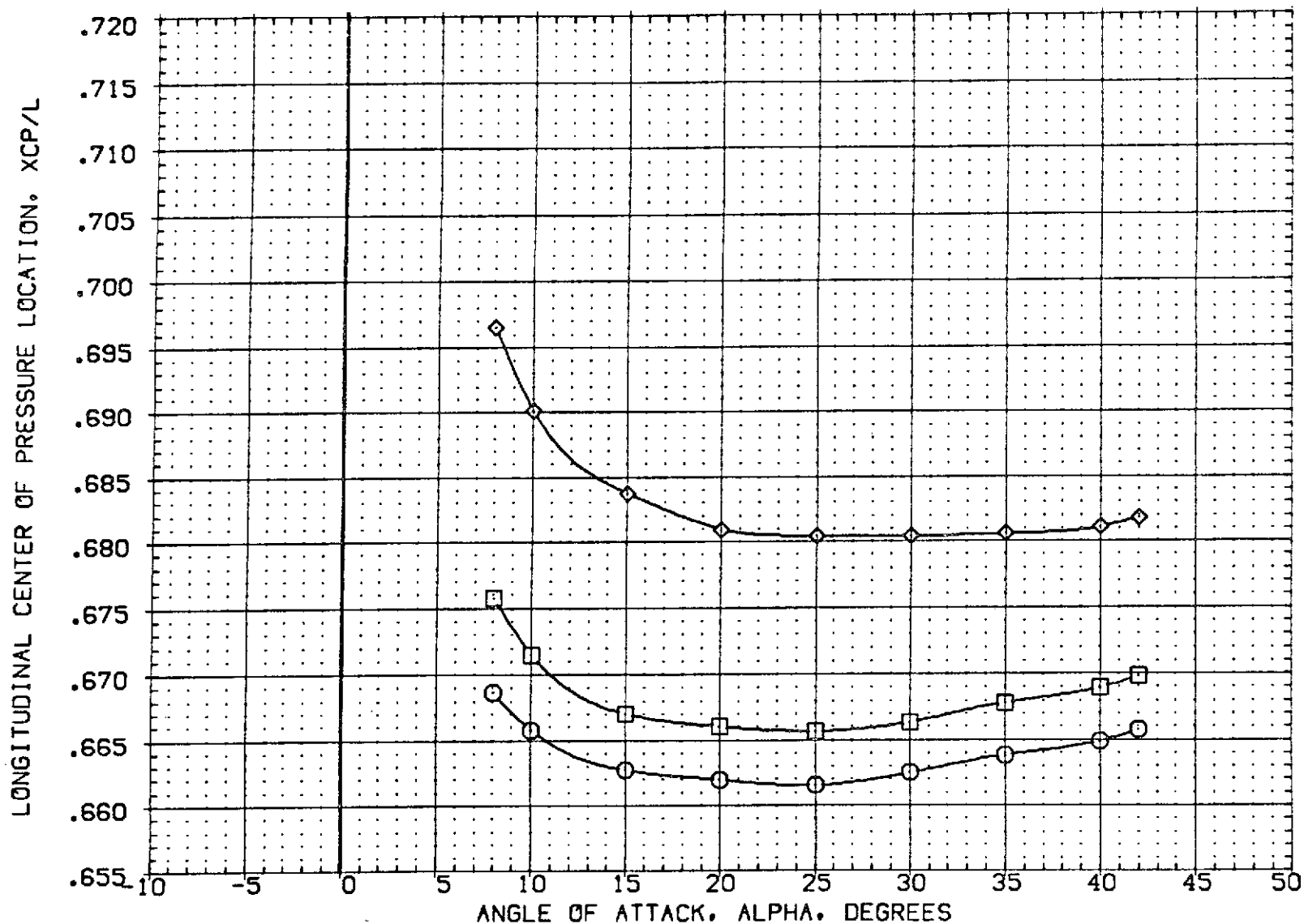


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(E02015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(E02016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(E02010)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
.000	-11.700	54.920	.000	SREF	2690.0000	50.FT.
.000	.000	54.920	.000	LREF	476.8117	IN.
.000	16.300	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

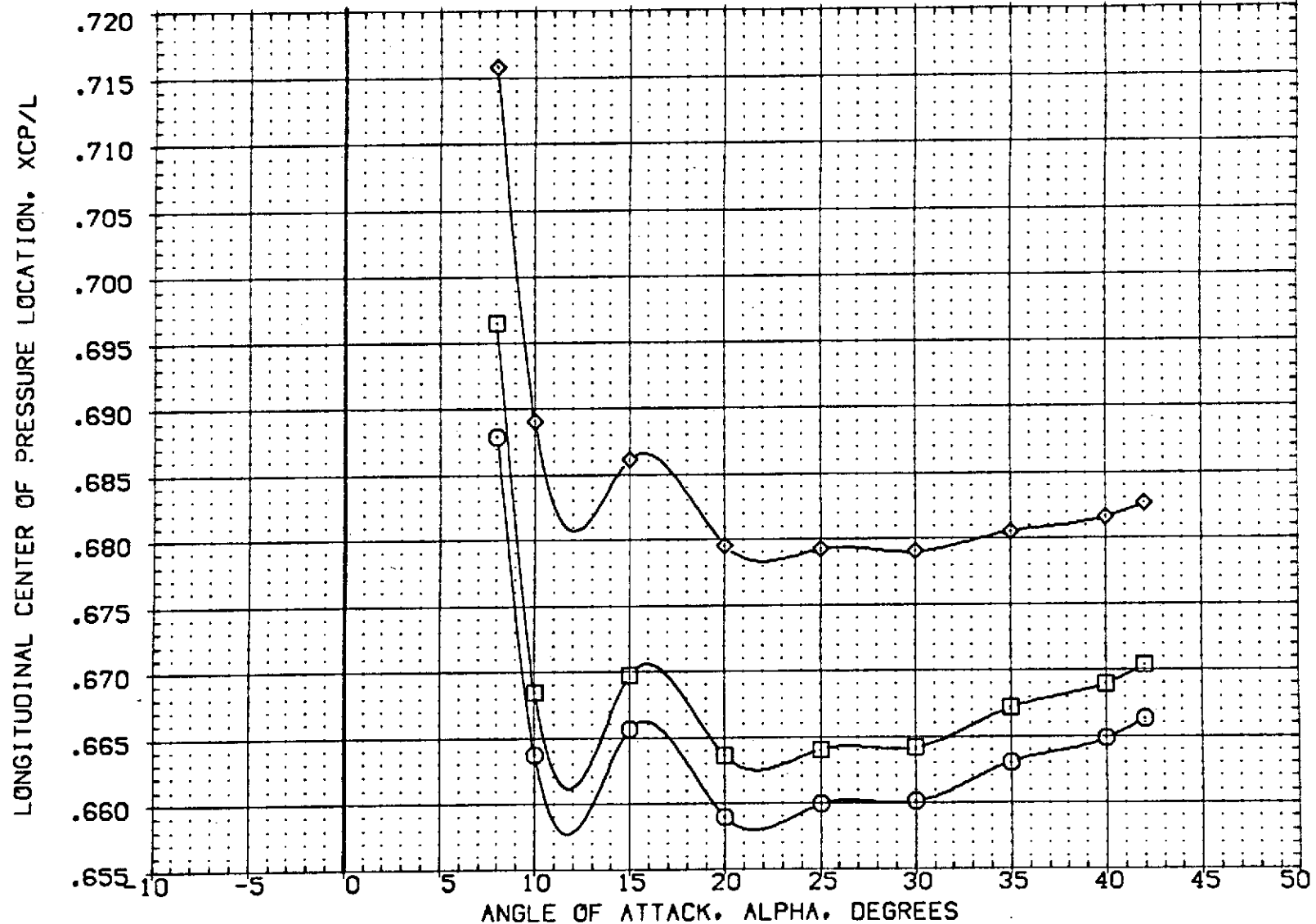


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2015)	OA20C LRC UPWT 1057 -140A/B ORBITER
(PQ2016)	OA20C LRC UPWT 1057 -140A/B ORBITER
(PQ2010)	OA20C LRC UPWT 1057 -140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

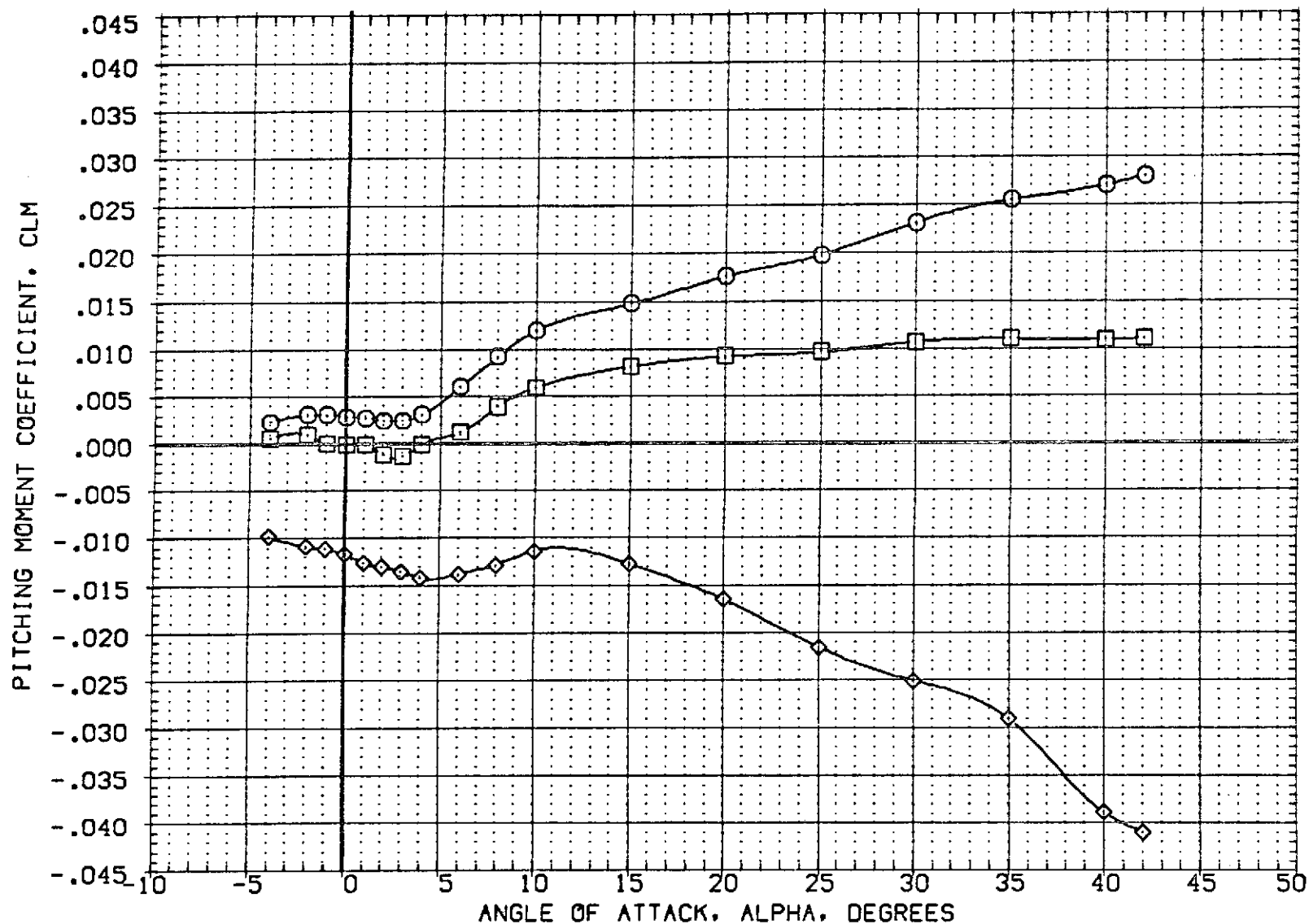


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(P02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(P02016)	0A20C LRC UPVT 1057 -140A/B ORBITER
(P02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

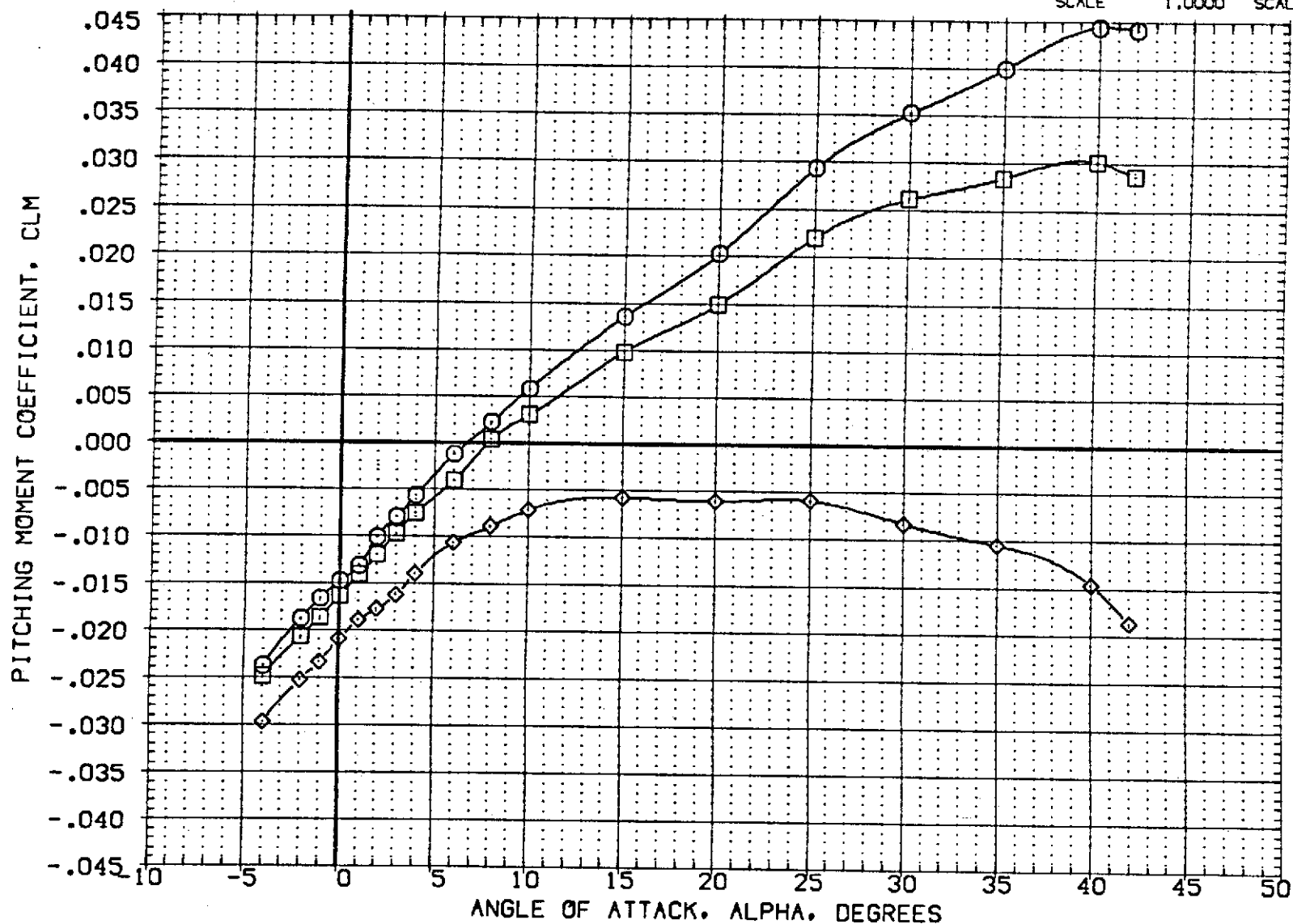


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2015)	OA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2016)	OA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2010)	OA20C LRC UPVT 1057 -140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
.000	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
.000	.000	54.920	.000	LREF 476.8117 IN.
.000	16.300	54.920	.000	BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

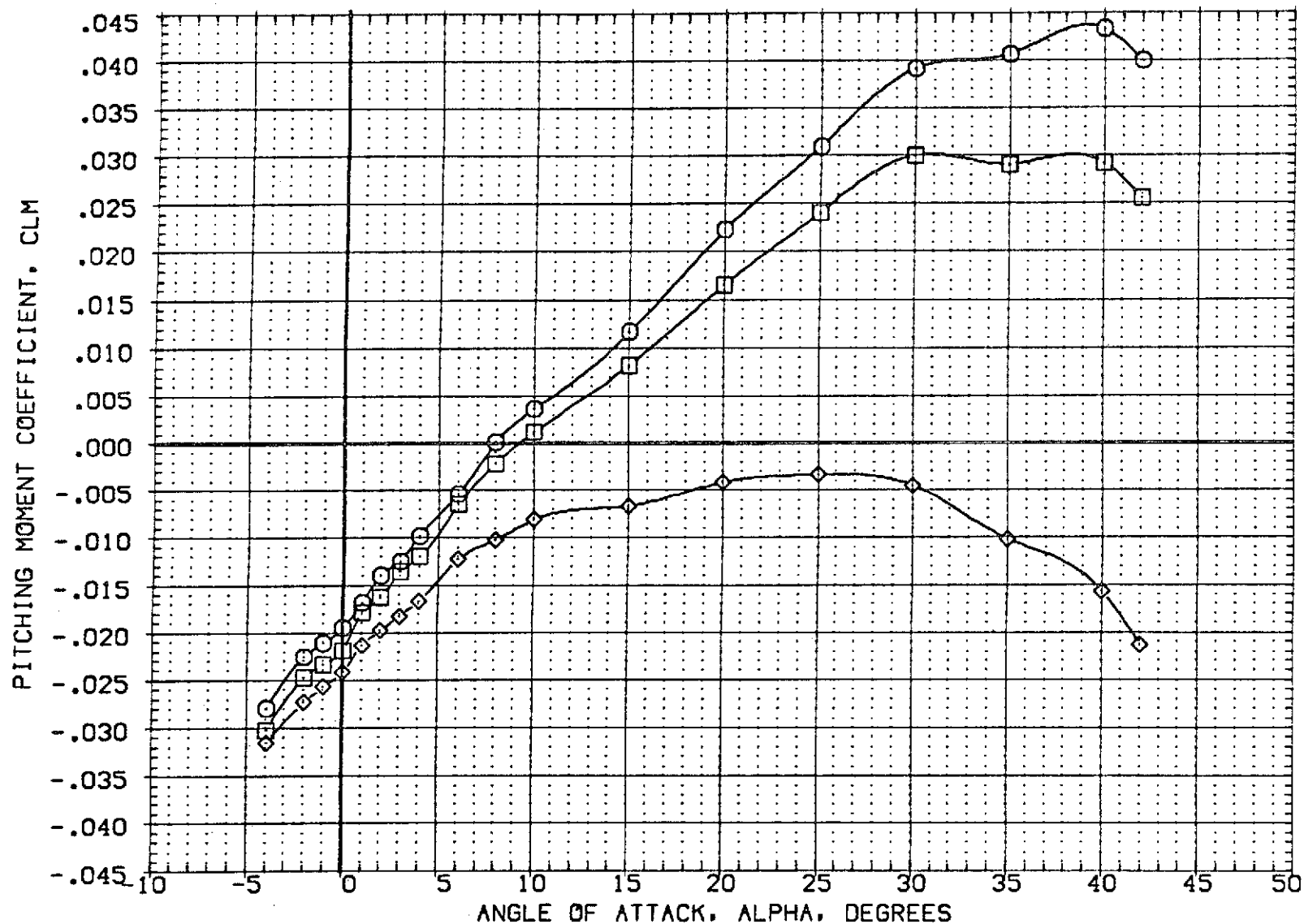


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(GQ2010)	0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

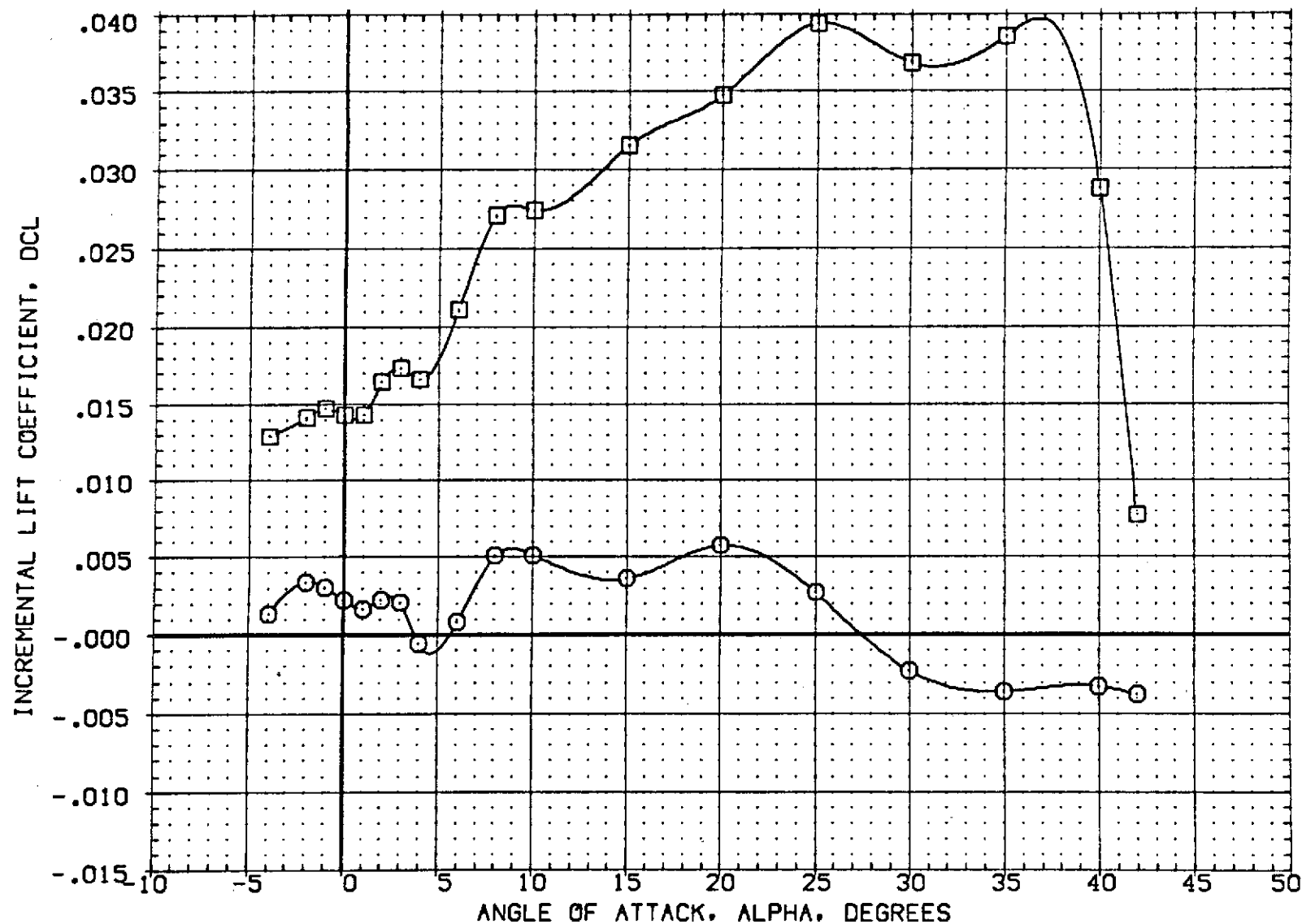


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015) ○	0A20C LRC UPVT 1057 -140A/B ORBITER
(G02010) □	0A20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

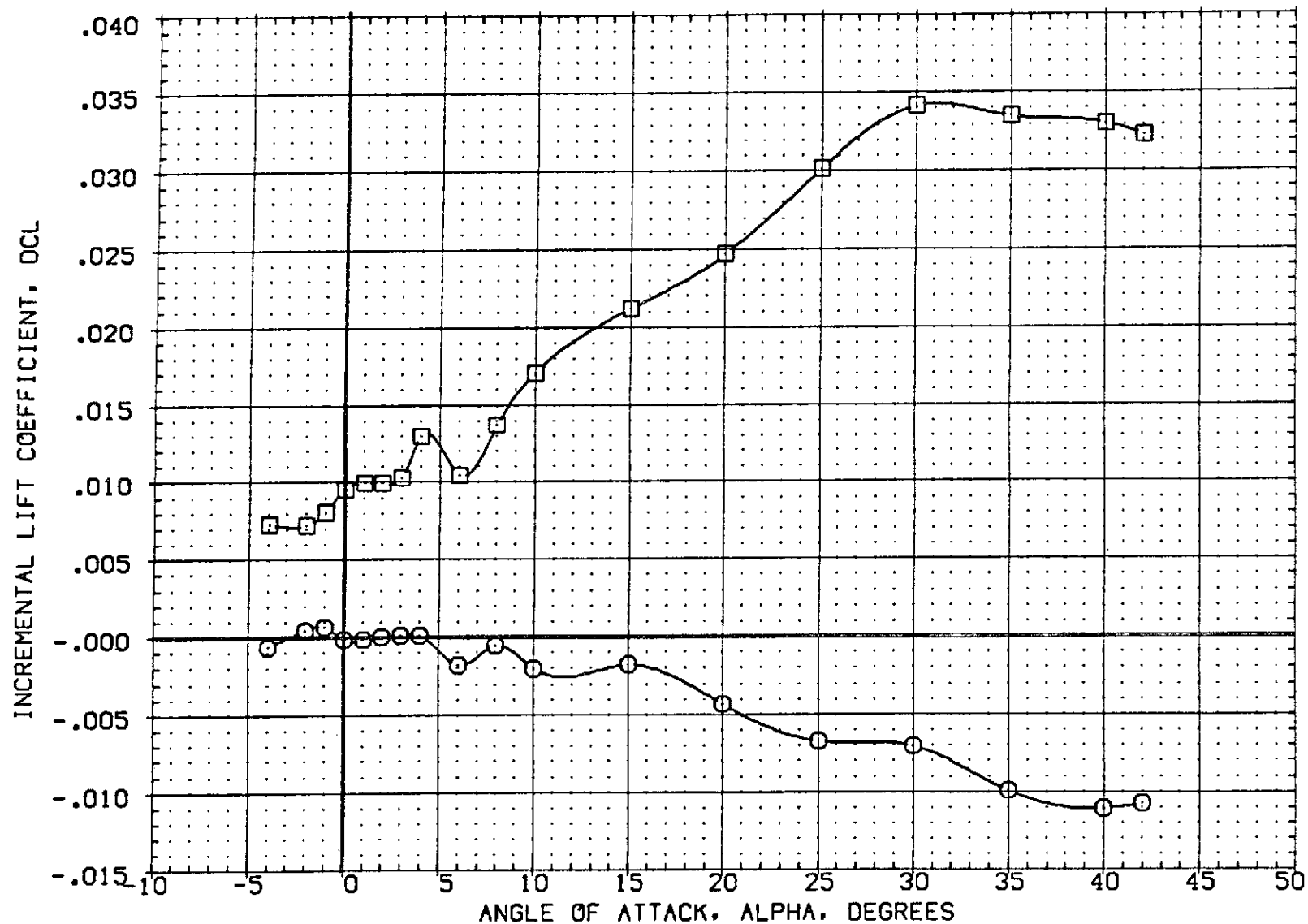


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2015)	○ OA20C LRC UPVT 1057 -140A/B ORBITER
(GQ2010)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

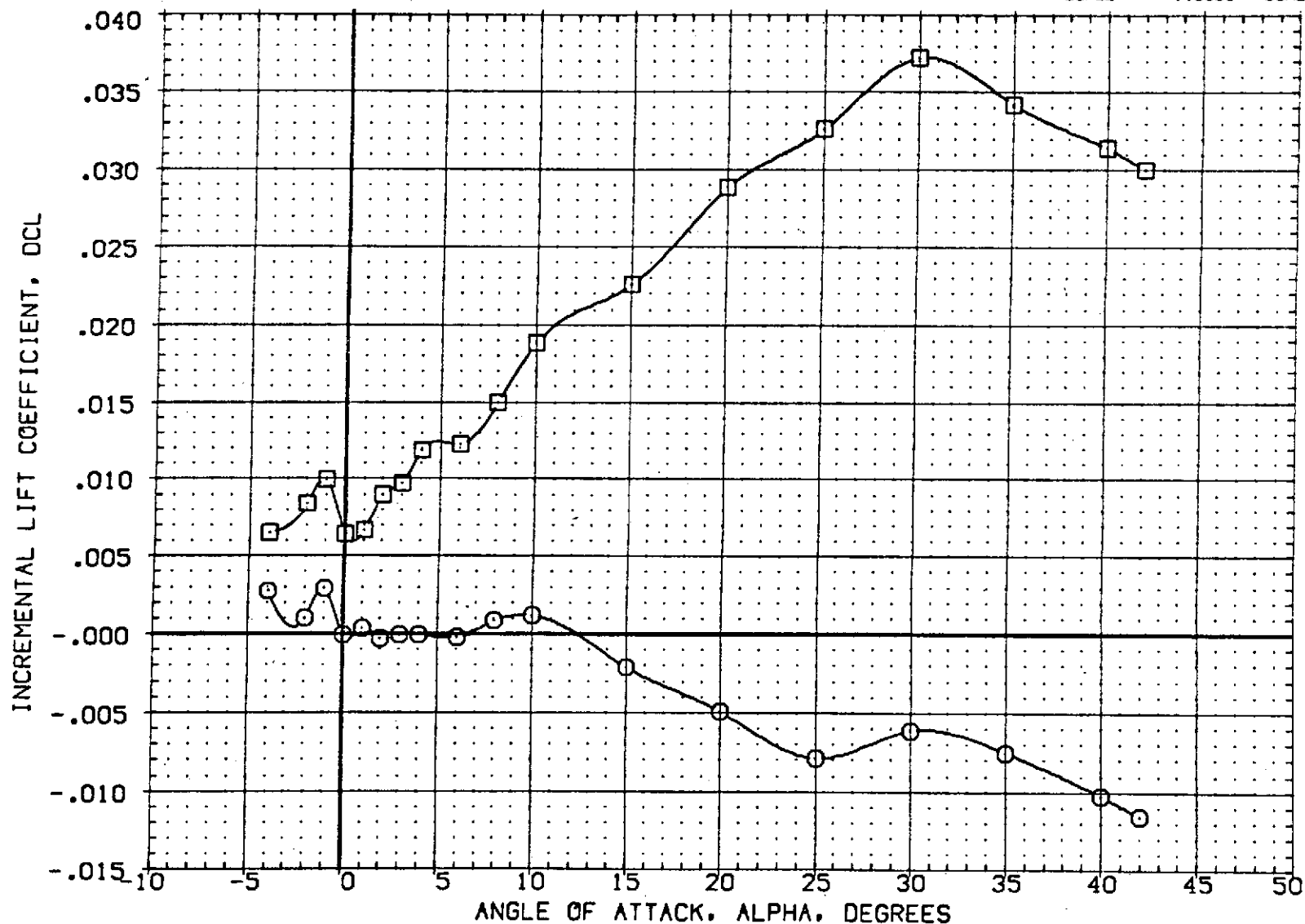


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02015) ○ OA20C LRC UPWT 1057 -140A/B ORBITER  
 (G02010) □ OA20C LRC UPWT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

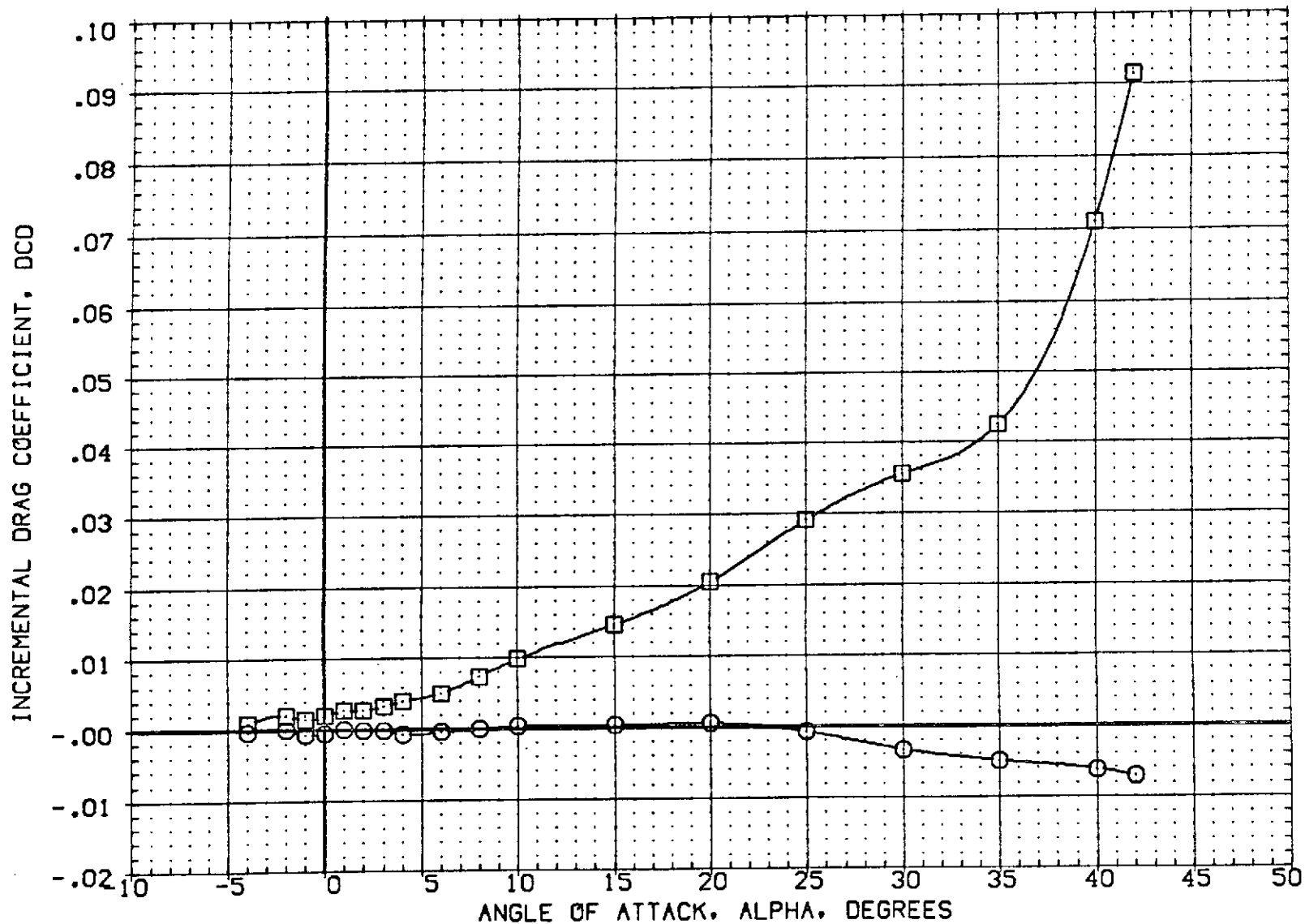


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRF 1076.4800 IN.
				YMRF .0000 IN.
				ZMRF 375.0000 IN.
				SCALE 1.0000 SCALE

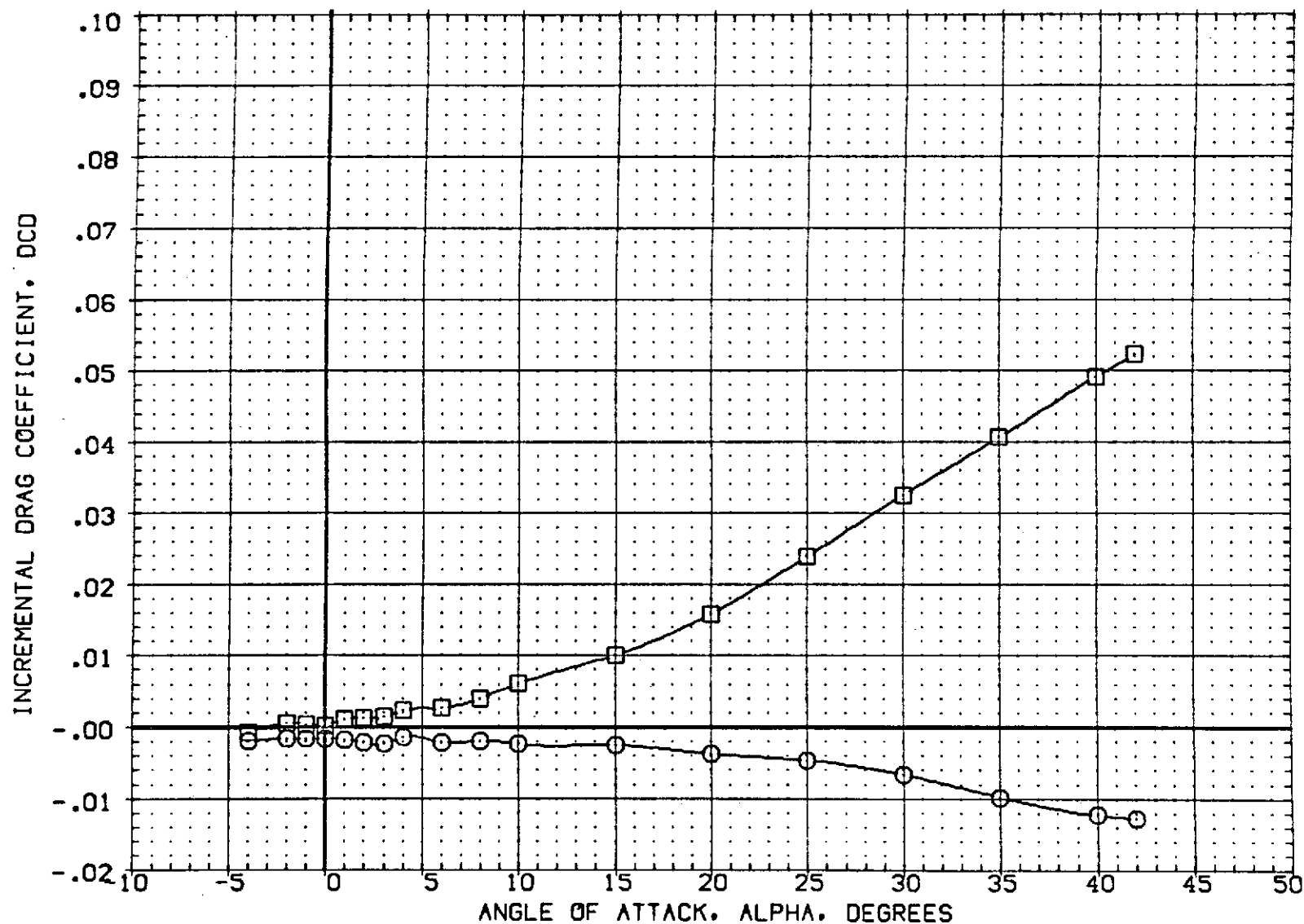




FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02015)  0A20C LRC UPWT 1057 -140A/B ORBITER  
 (G02010)  0A20C LRC UPWT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

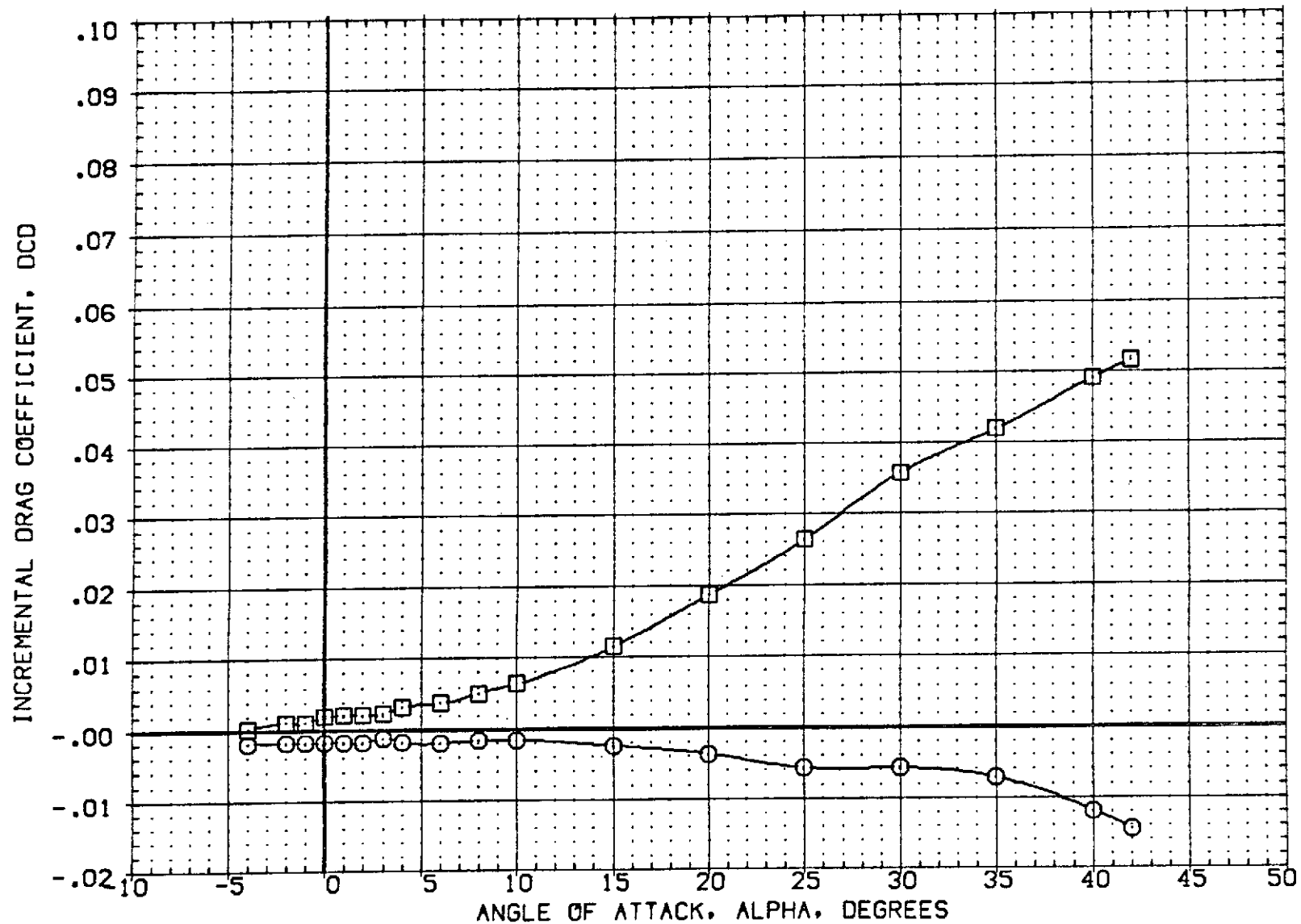


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	○ OA20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

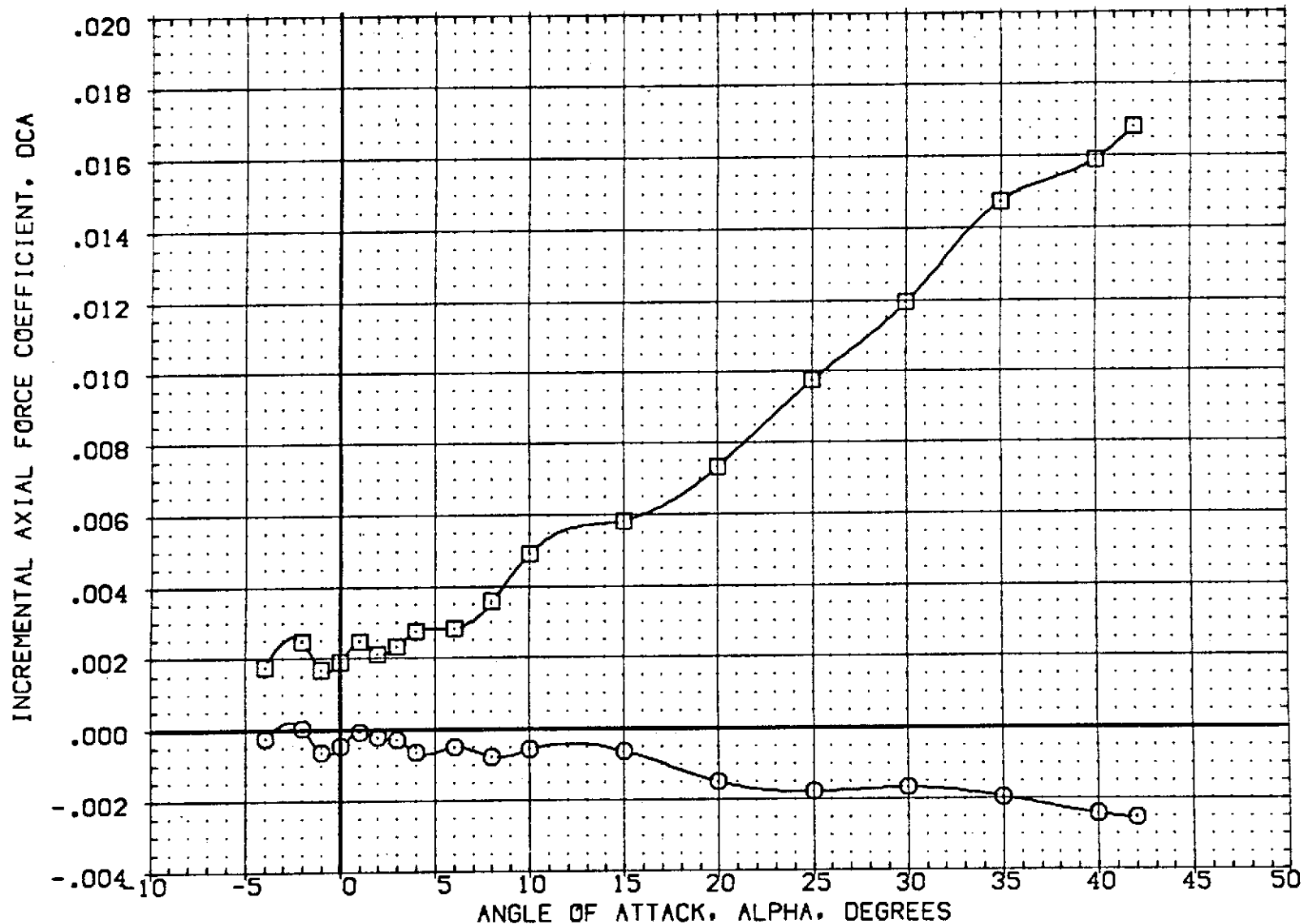


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02015) ○ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (G02010) □ OA20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

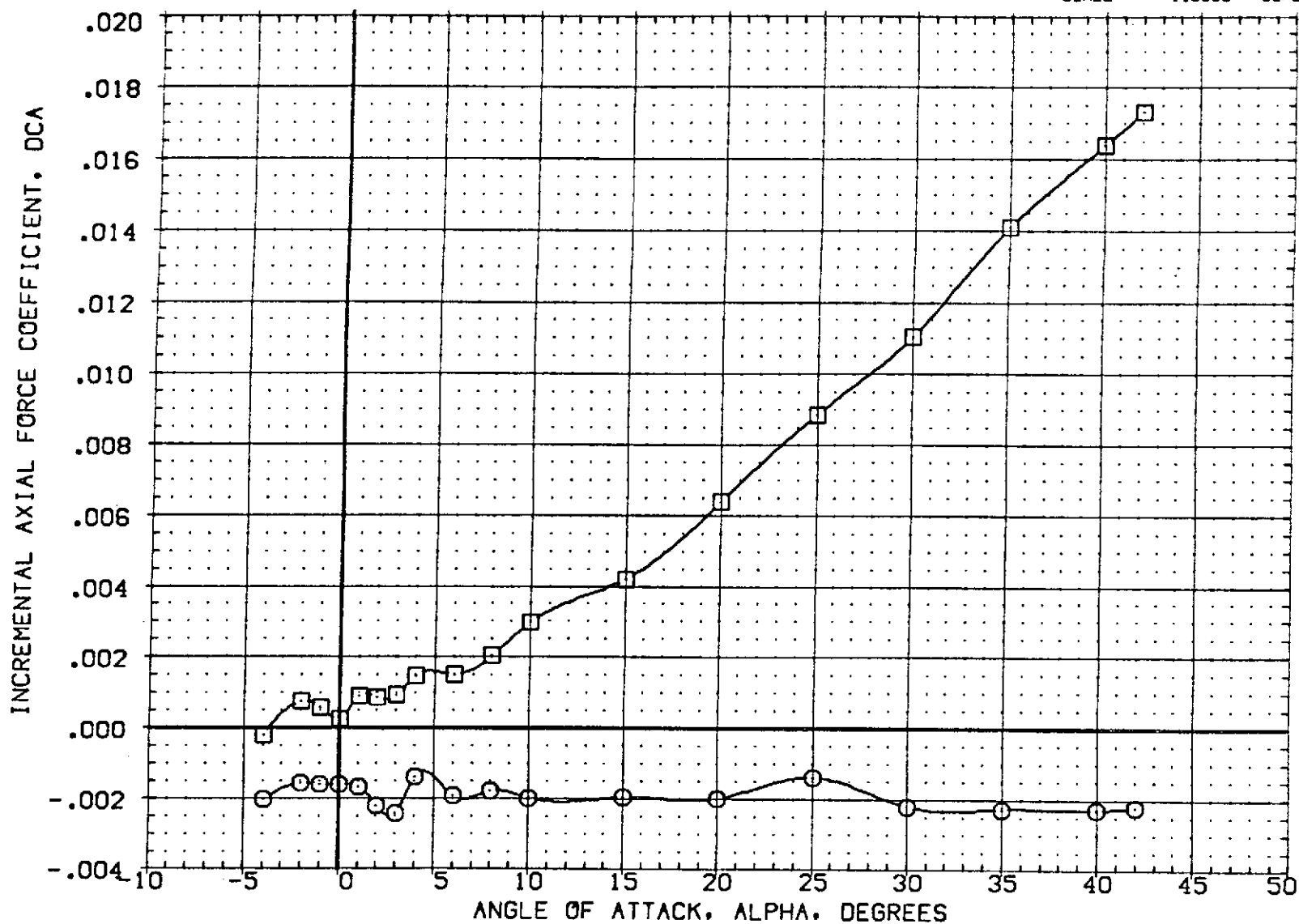


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	○ OA20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

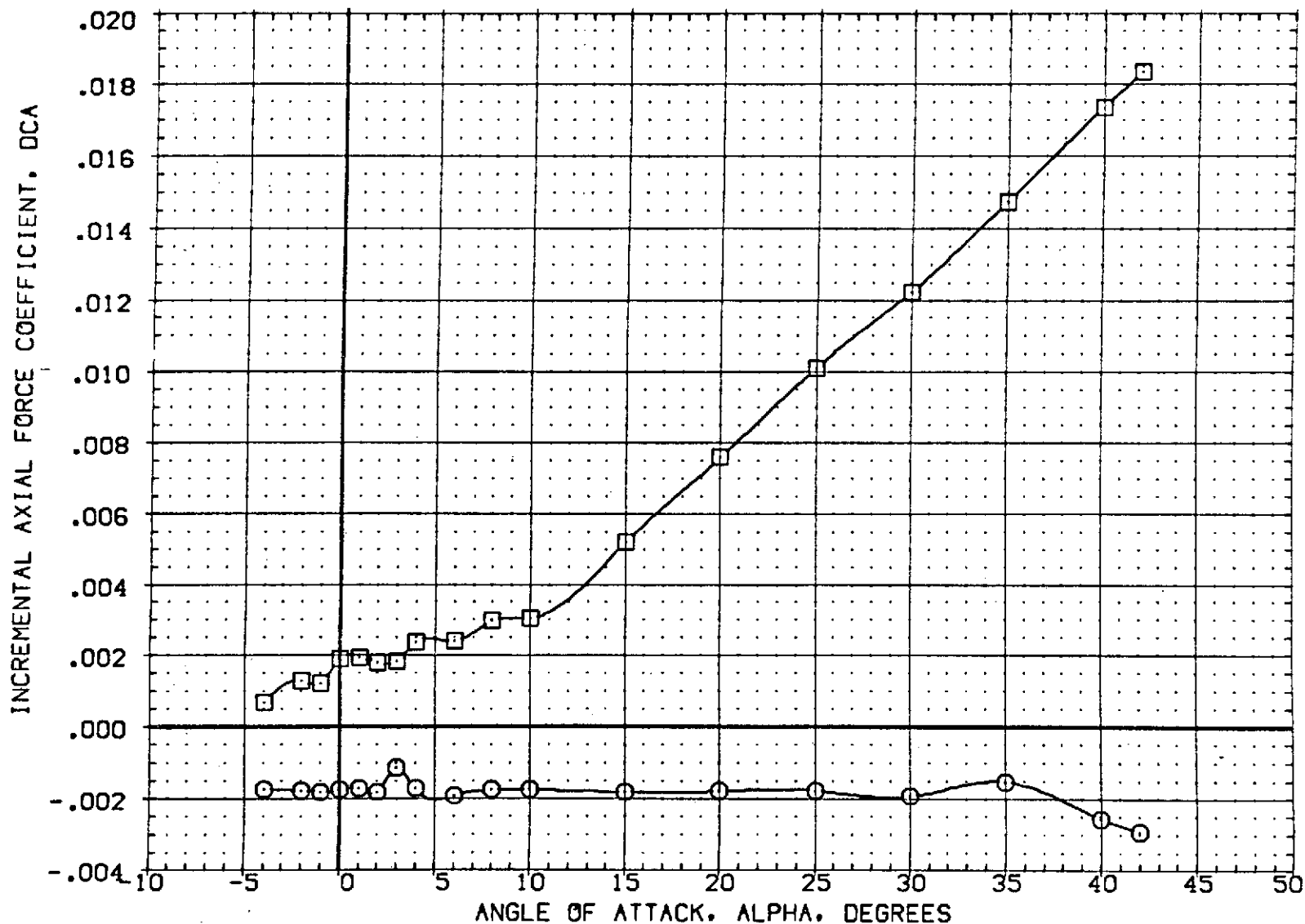


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	50.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

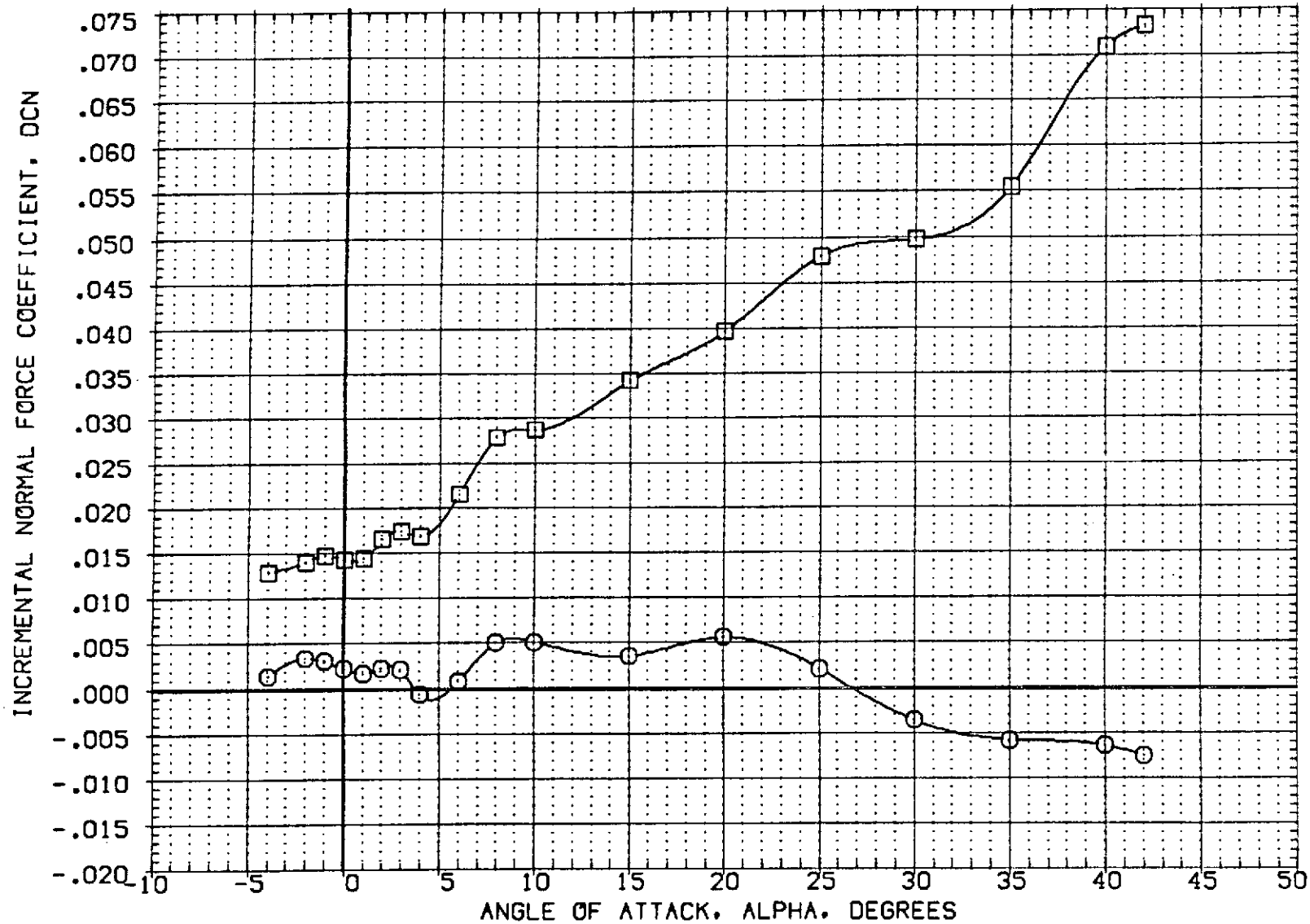


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(GQ2010)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION	
-11.700	.000	54.920	.000	SREF	2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117 IN.
				BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

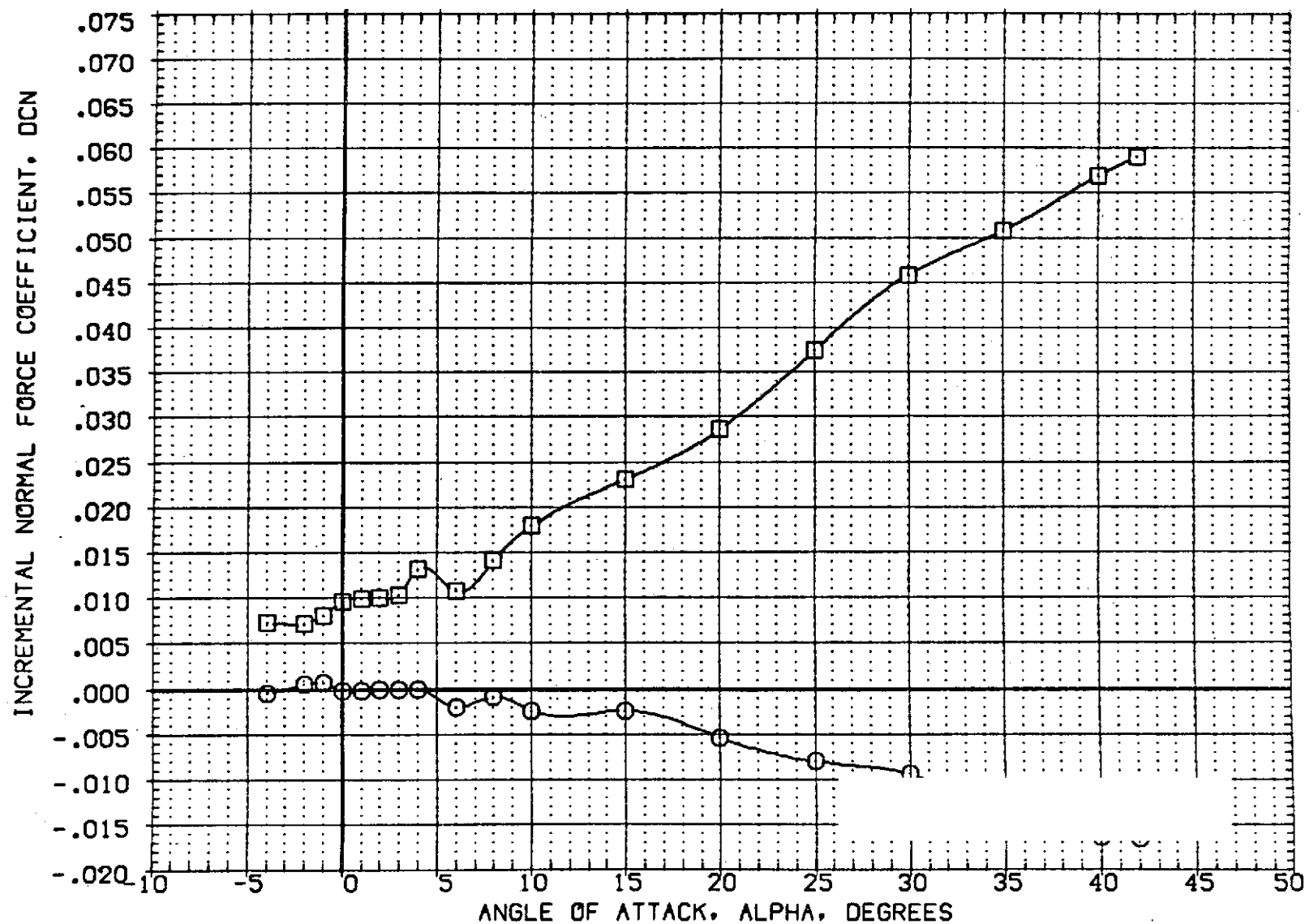


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (G02015) ○ GA20C LRC UPVT 1057 -140A/B ORBITER  
 (G02010) □ GA20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

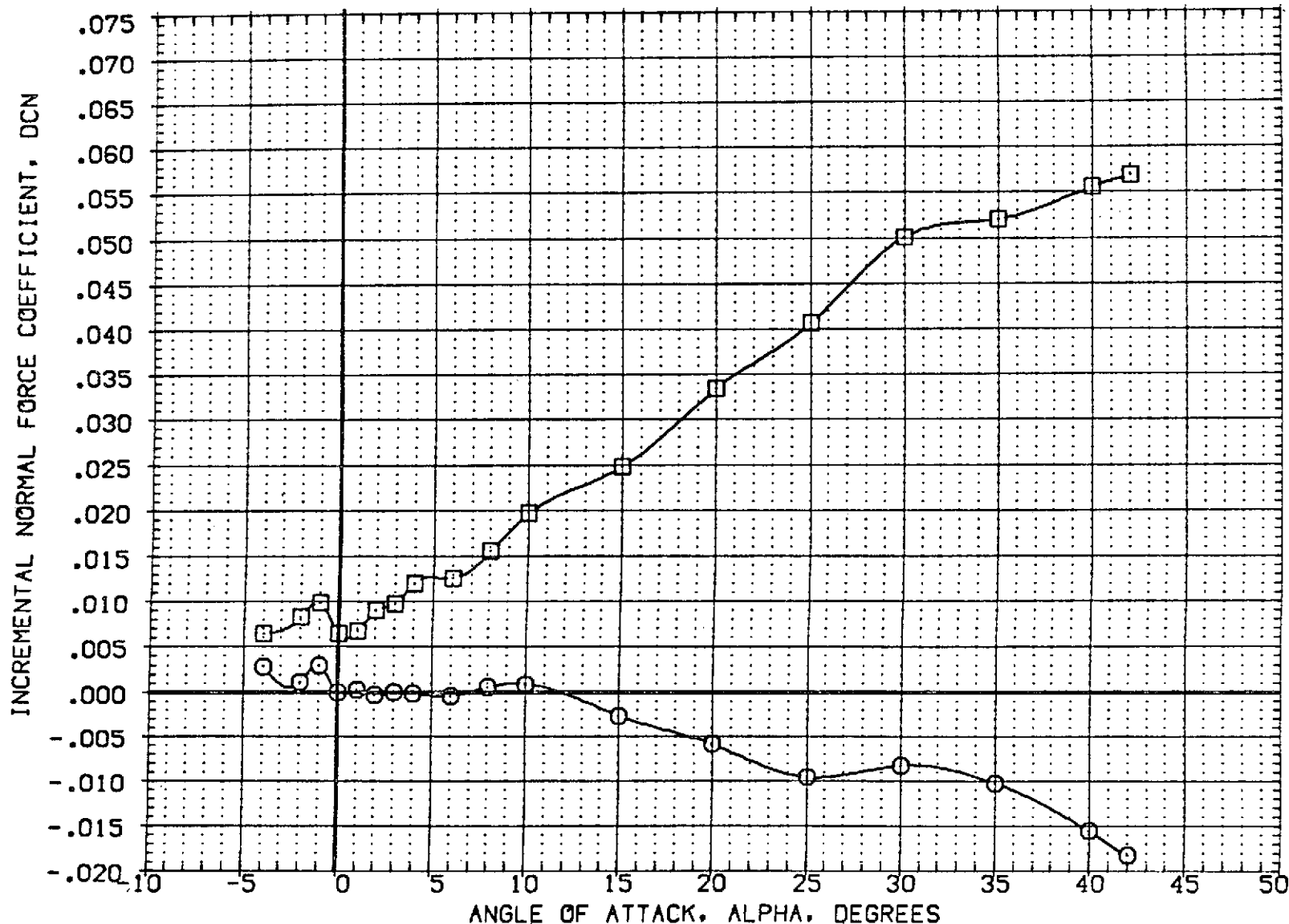


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	0A20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

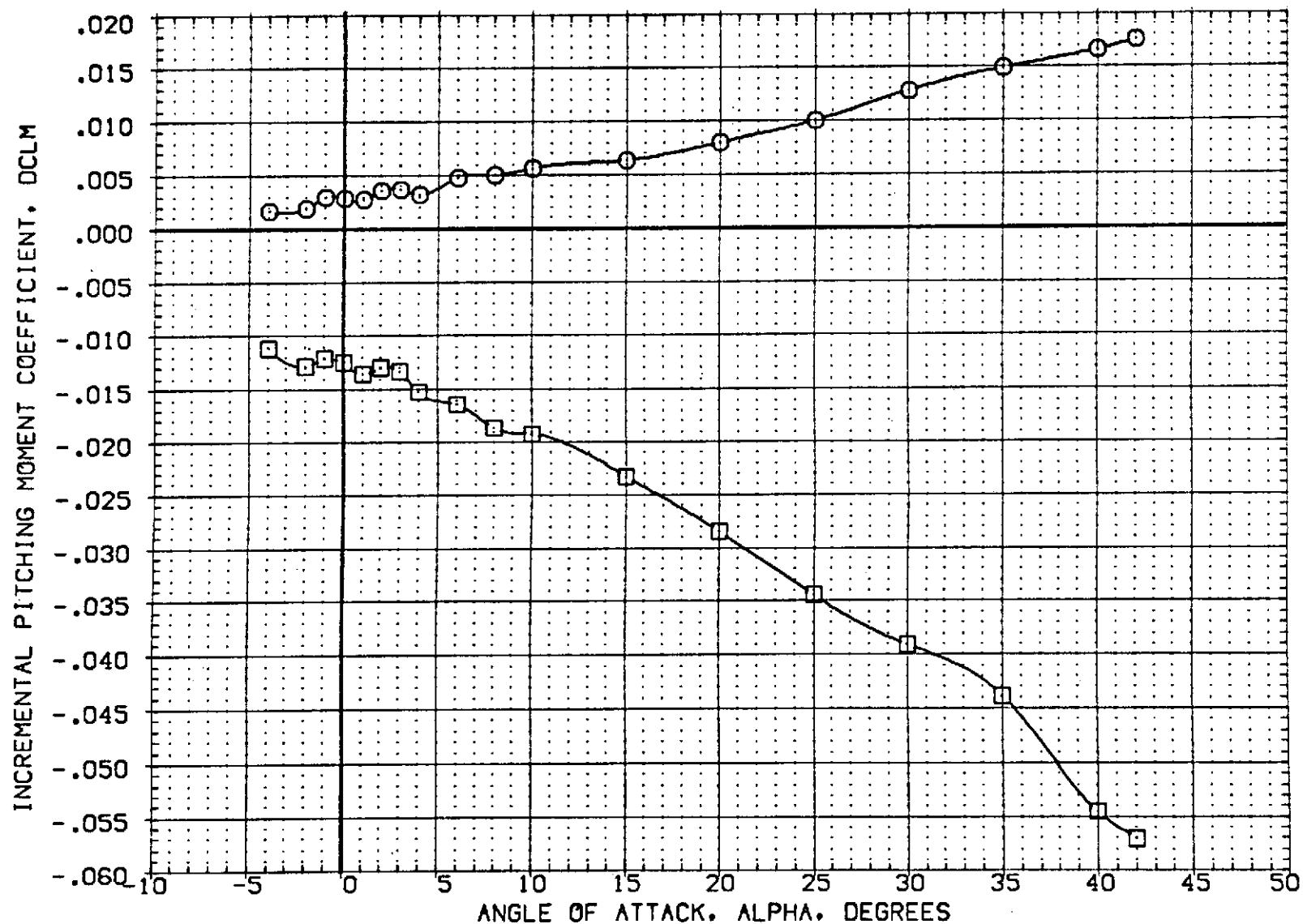


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPOBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(G02015)	○ 0A20C LRC UPVT 1057 -140A/B ORBITER
(G02010)	□ 0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON
-11.700	.000	54.920	.000
16.300	.000	54.920	.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	476.8117 IN.
BREF	936.6816 IN.
XMRP	1076.4800 IN.
YMRP	.0000 IN.
ZMRP	375.0000 IN.
SCALE	1.0000 SCALE

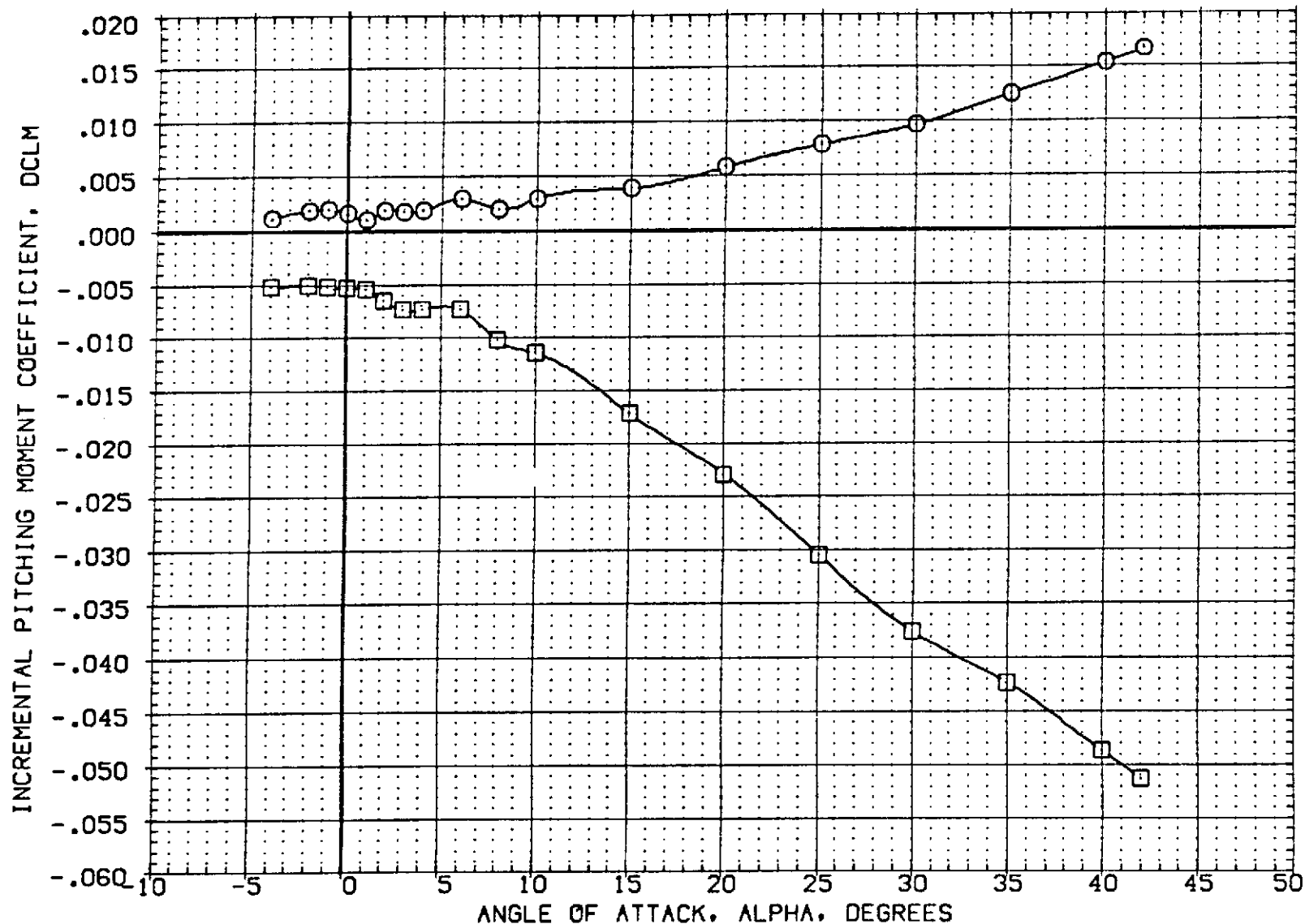


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(GQ2015) ○	0A20C LRC UPVT 1057 -140A/B ORBITER
(GQ2010) □	0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

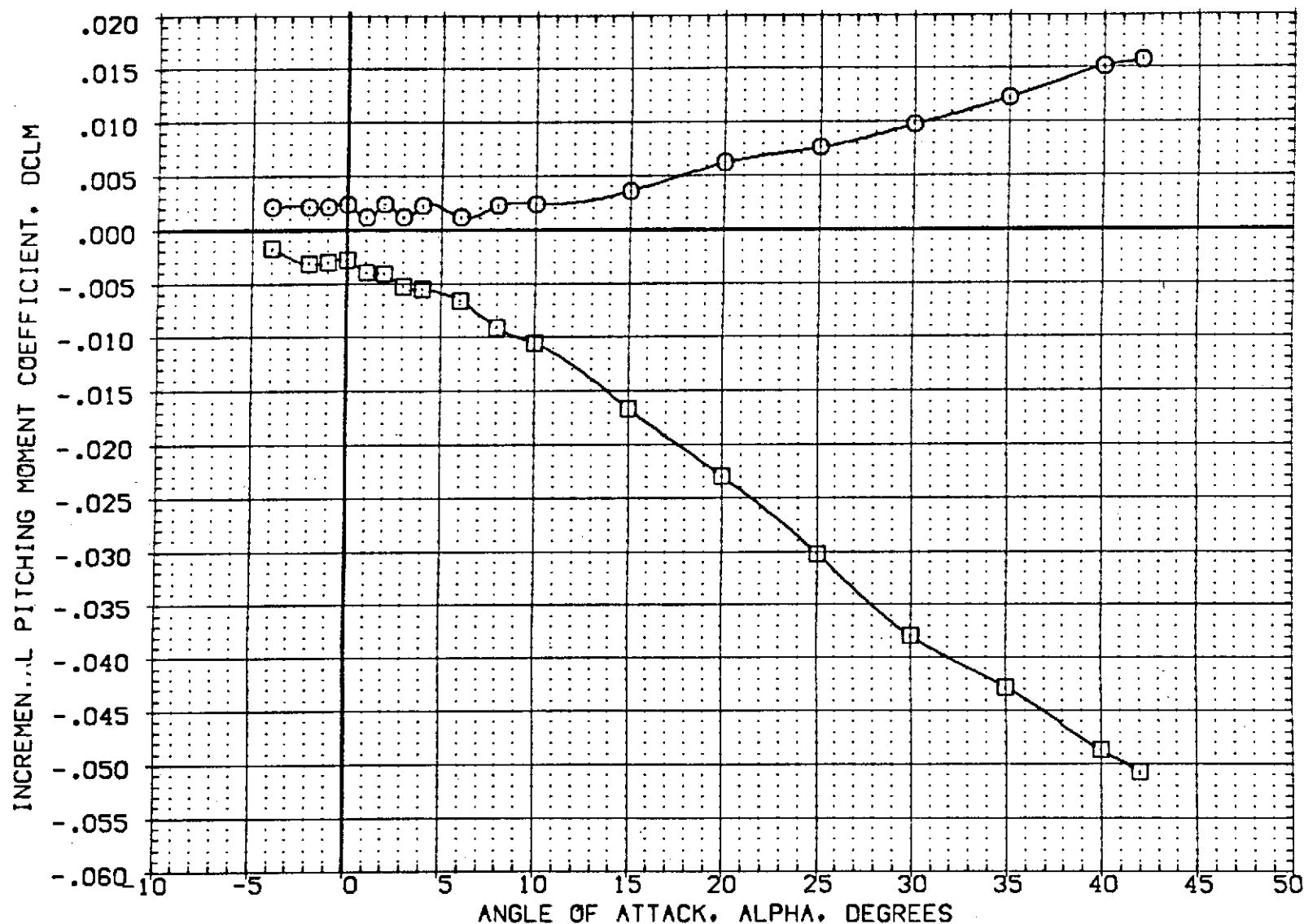


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(002015)	○ BA20C LRC UPVT 1057 -140A/B ORBITER
(002010)	□ BA20C LRC UPVT 1057 -140A/B ORBITER

DBOFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION
-11.700	.000	54.920	.000	SREF 2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF 476.8117 IN.
				BREF 936.6816 IN.
				XMRP 1108.9500 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

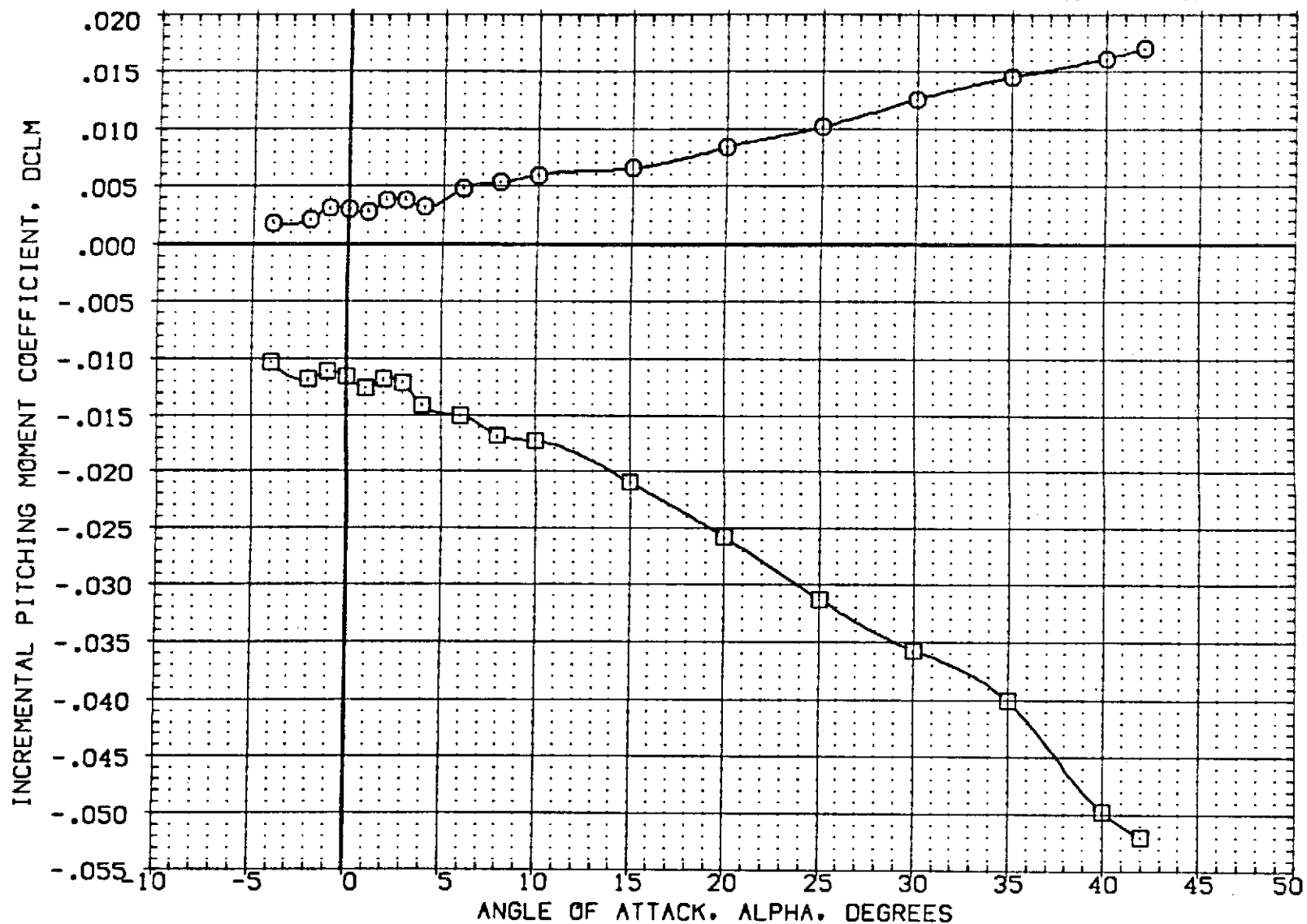


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(002015)	□ OA20C LRC UPVT 1057 -140A/B ORBITER
(002010)	□ OA20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPOBRK	AILRON	REFERENCE INFORMATION	
-11.700	.000	54.920	.000	SREF	2690.0000 SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117 IN.
				BREF	936.6816 IN.
				XMRP	1108.9500 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

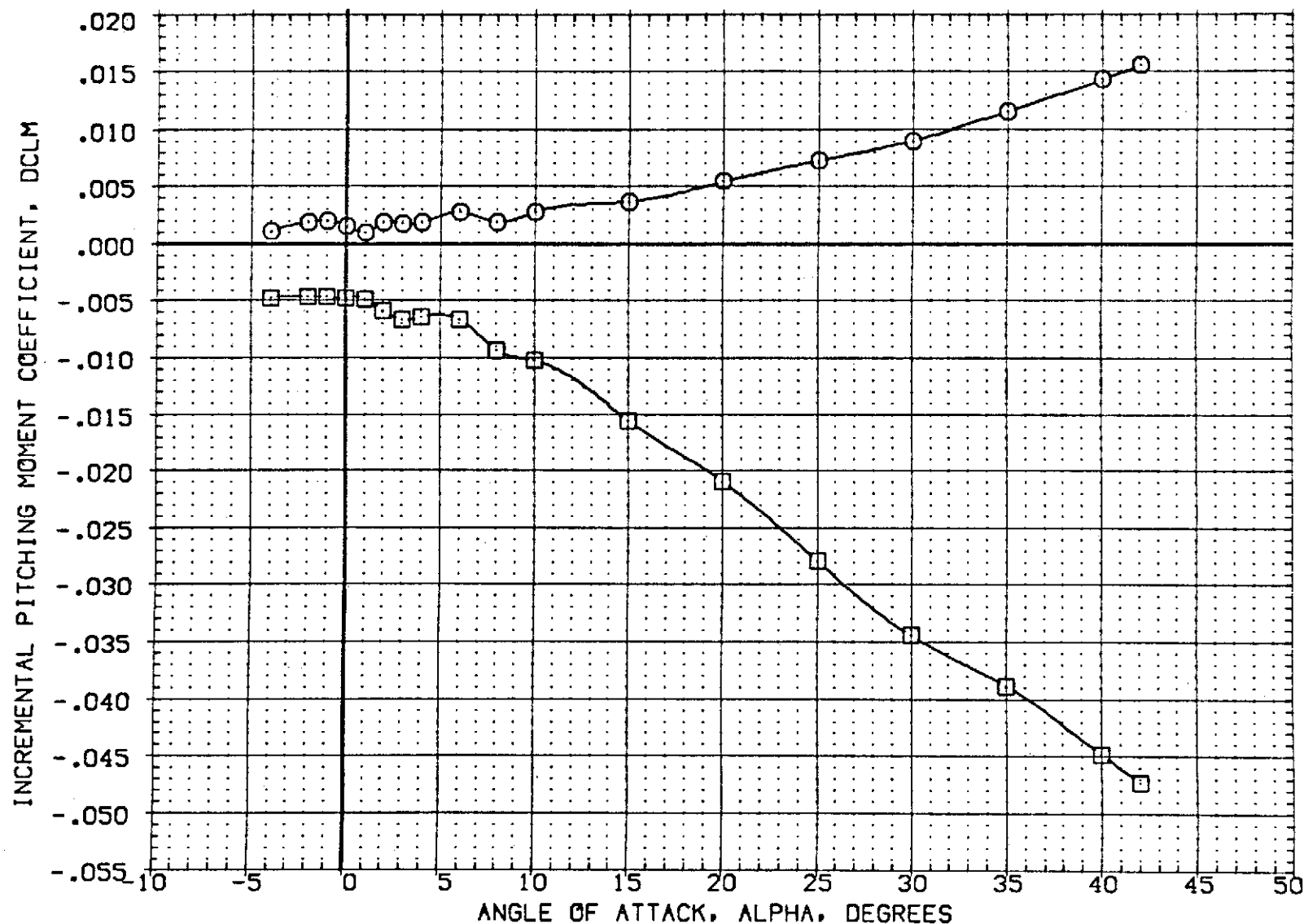




FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (002015)  0A20C LRC UPVT 1057 -140A/B ORBITER  
 (002010)  0A20C LRC UPVT 1057 -140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON	REFERENCE INFORMATION		
-11.700	.000	54.920	.000	SREF	2690.0000	SQ.FT.
16.300	.000	54.920	.000	LREF	476.8117	IN.
				BREF	936.6816	IN.
				XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

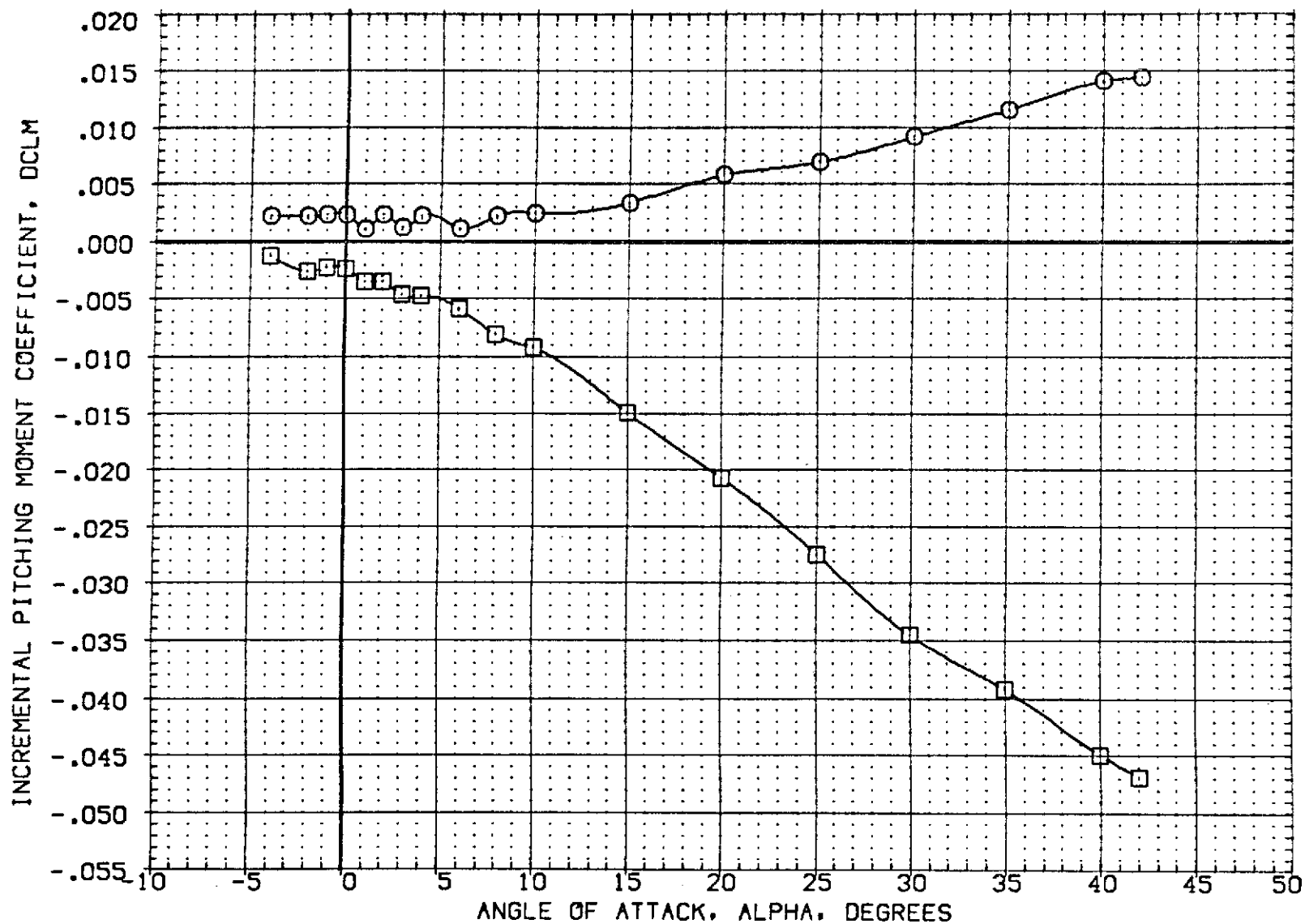


FIG 6 BODYFLAP EFFECT (BASE-LINE/SPDBRK DEFL = 0 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014)	DATA NOT AVAILABLE
(KQ2012)	DA20C LRC UPWT 1057 -140A/B ORBITER
(KQ2013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

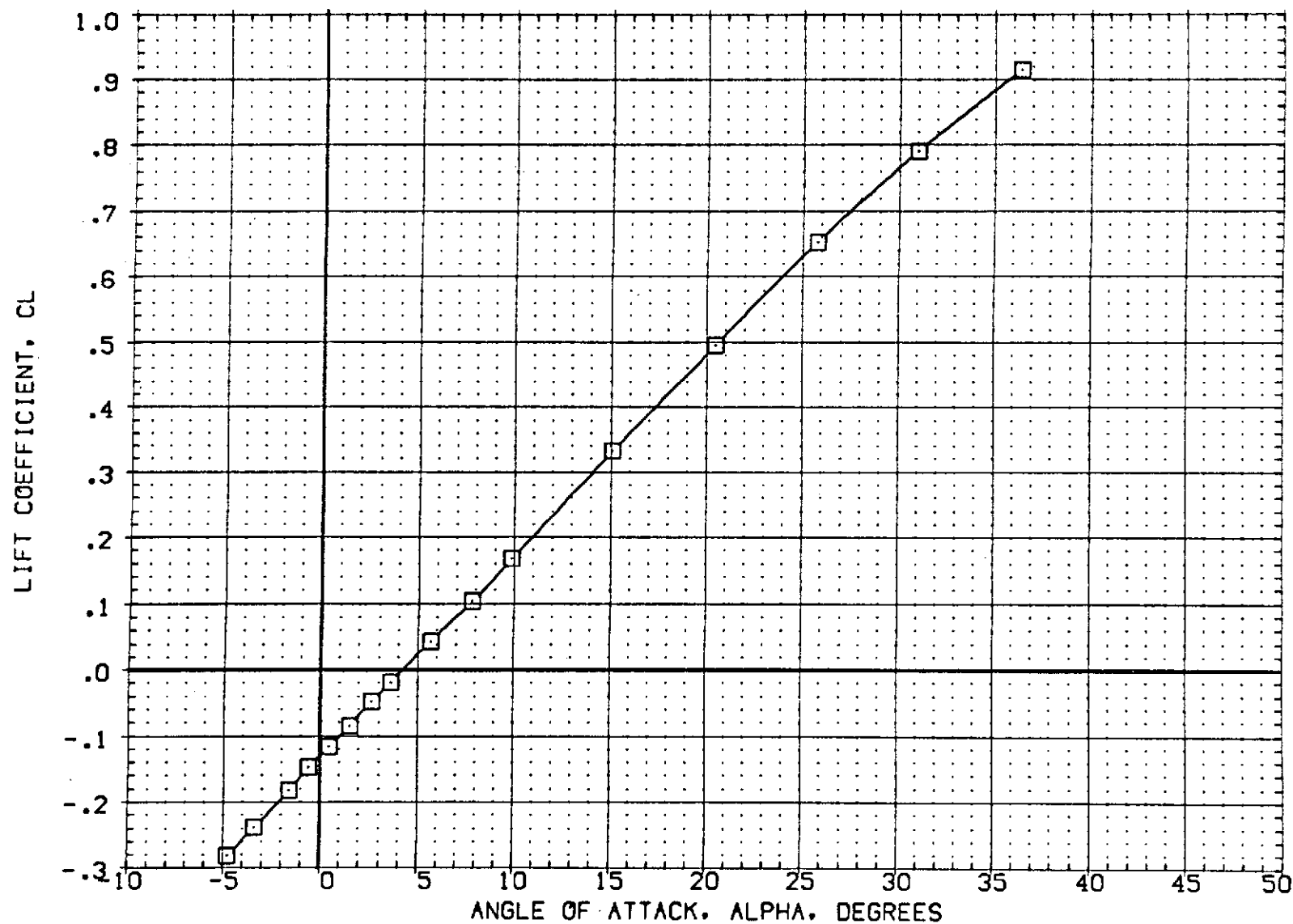


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02014) □ DATA NOT AVAILABLE  
 (K02012) □ 0A20C LRC UPVT 1057 -140A/B ORBITER  
 (K02013) ◇ DATA NOT AVAILABLE

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	50.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

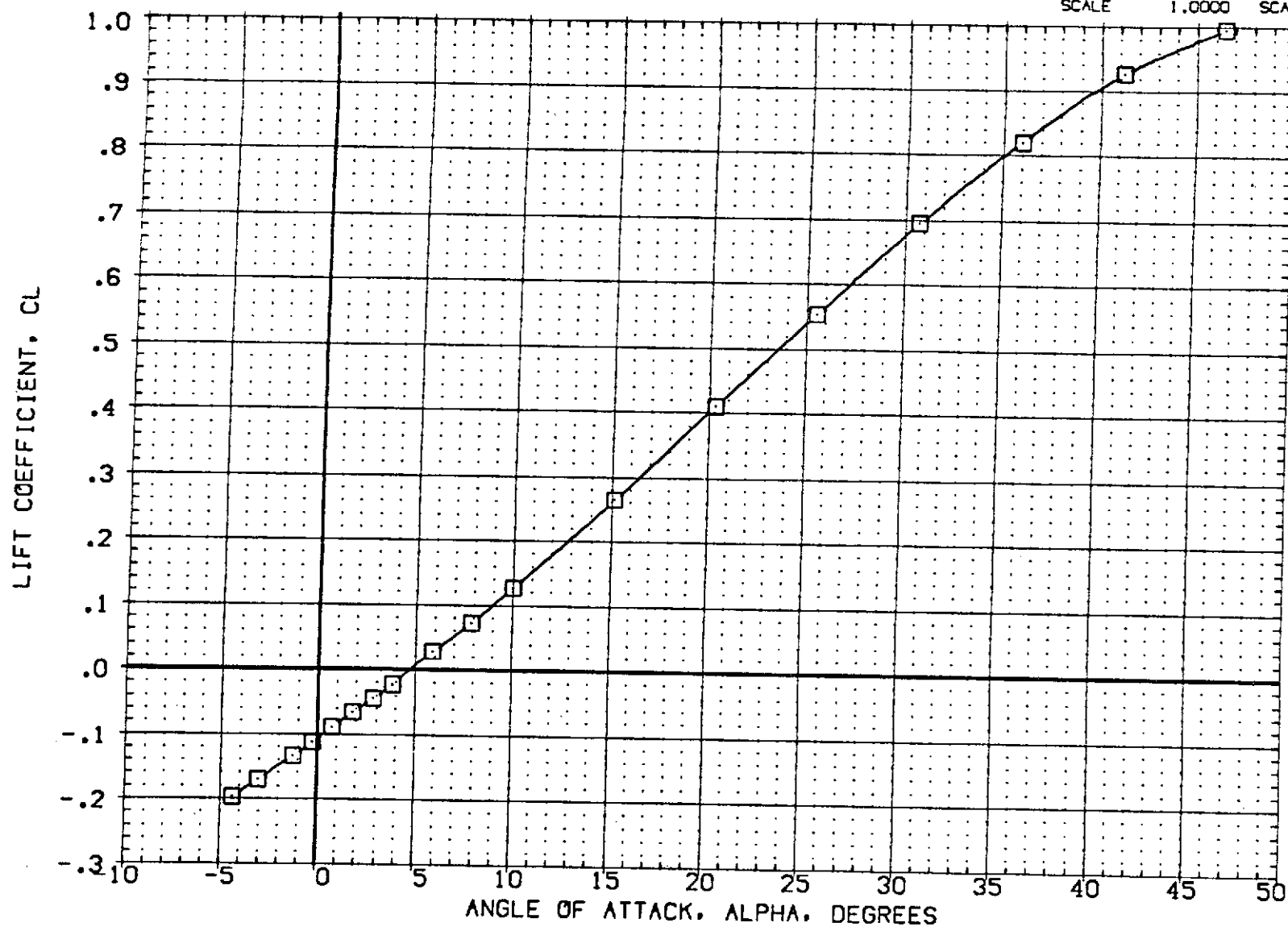


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)  
 (B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{K02014}	□ OA20C LRC UPVT 1057 -140A/B ORBITER
{K02012}	□ OA20C LRC UPVT 1057 -140A/B ORBITER
{K02013}	◇ OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
1.250	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF 476.8117 IN.
5.000	-11.700	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

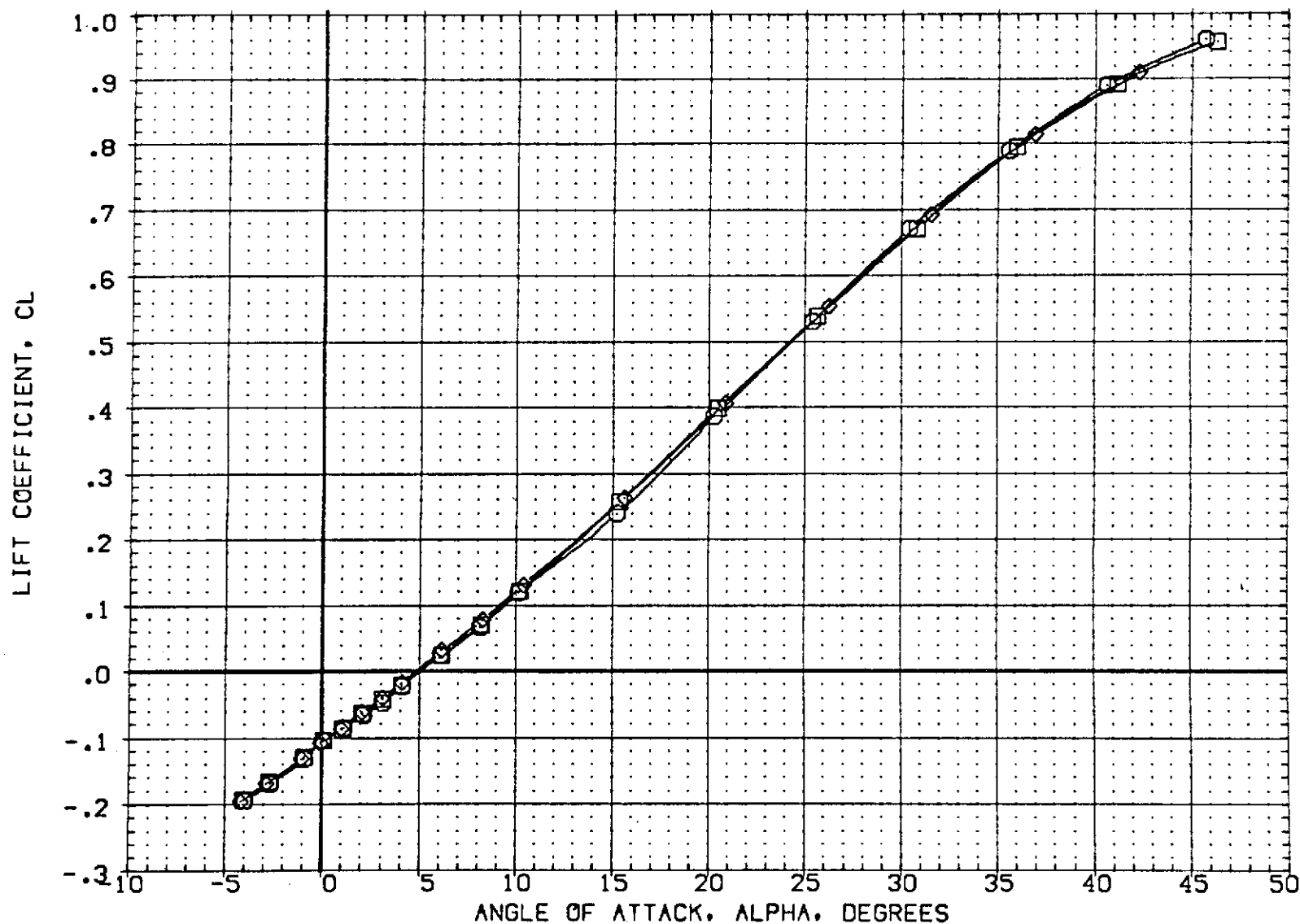


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02014) ○ DATA NOT AVAILABLE  
 (K02012) □ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (K02013) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

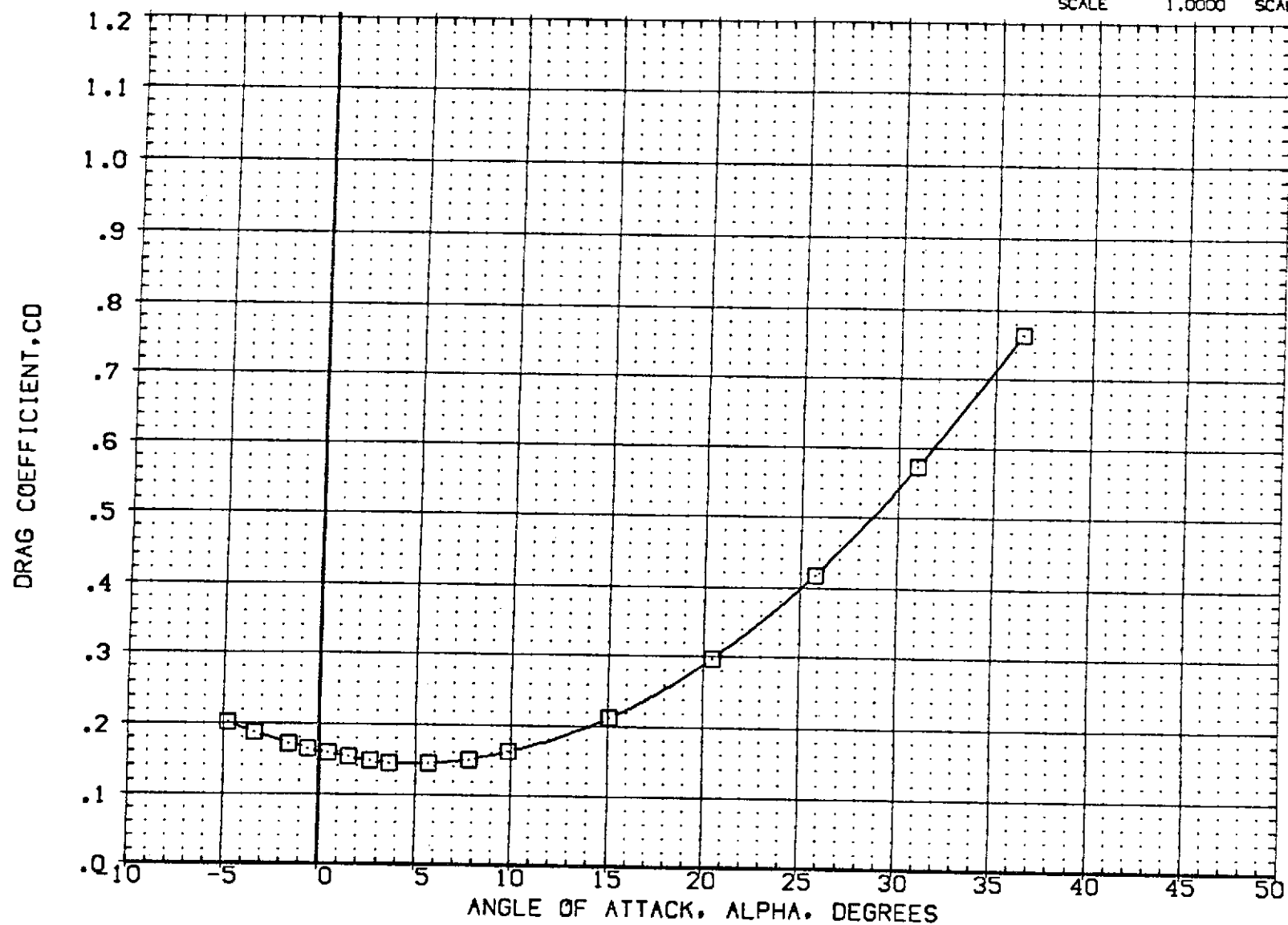


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[KQ2014]	○ DATA NOT AVAILABLE
[KQ2012]	□ GA20C LRC UPWT 1057 -140A/B ORBITER
[KQ2013]	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

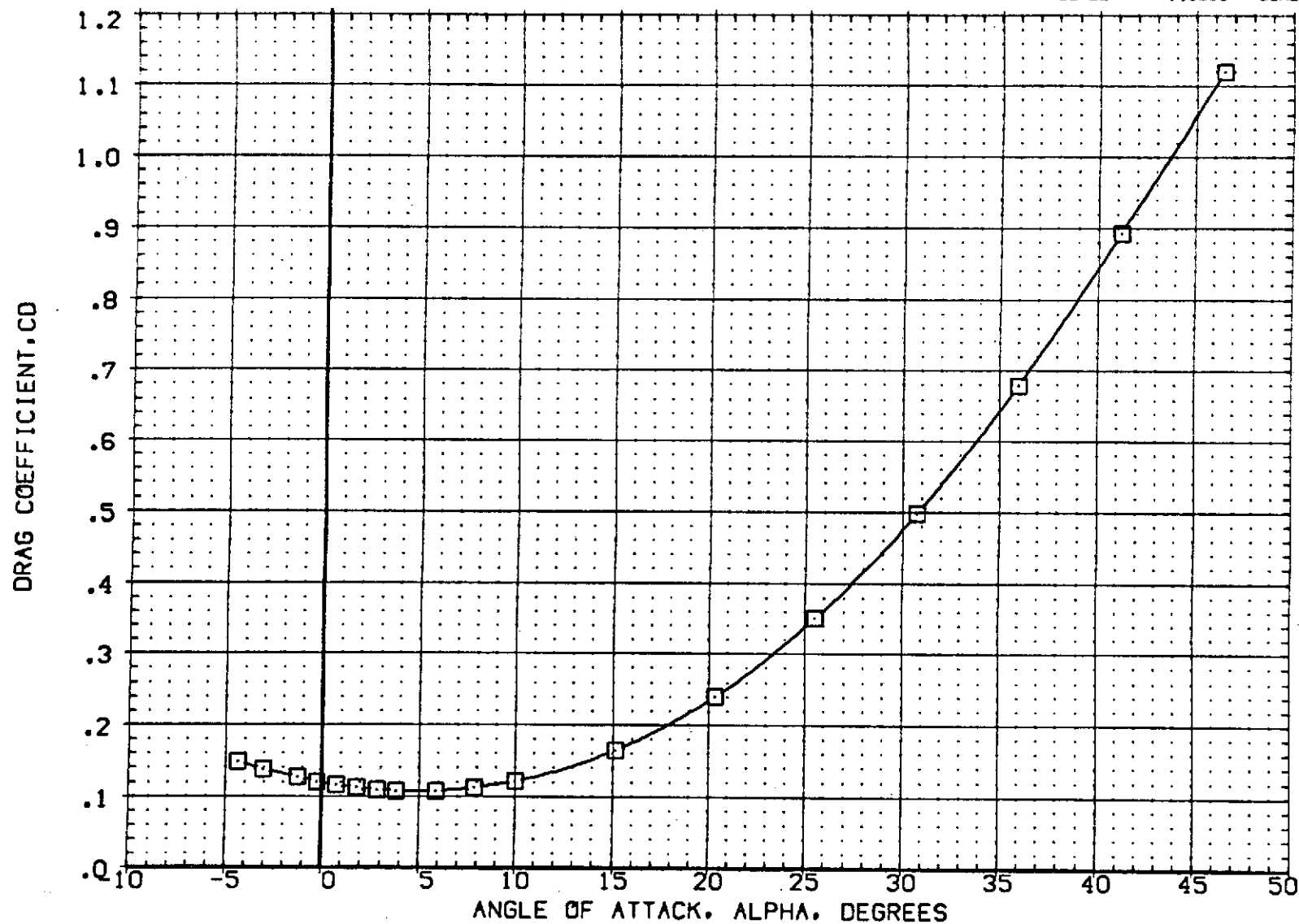


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	○	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02012)	□	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02013)	◇	0A20C LRC UPWT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

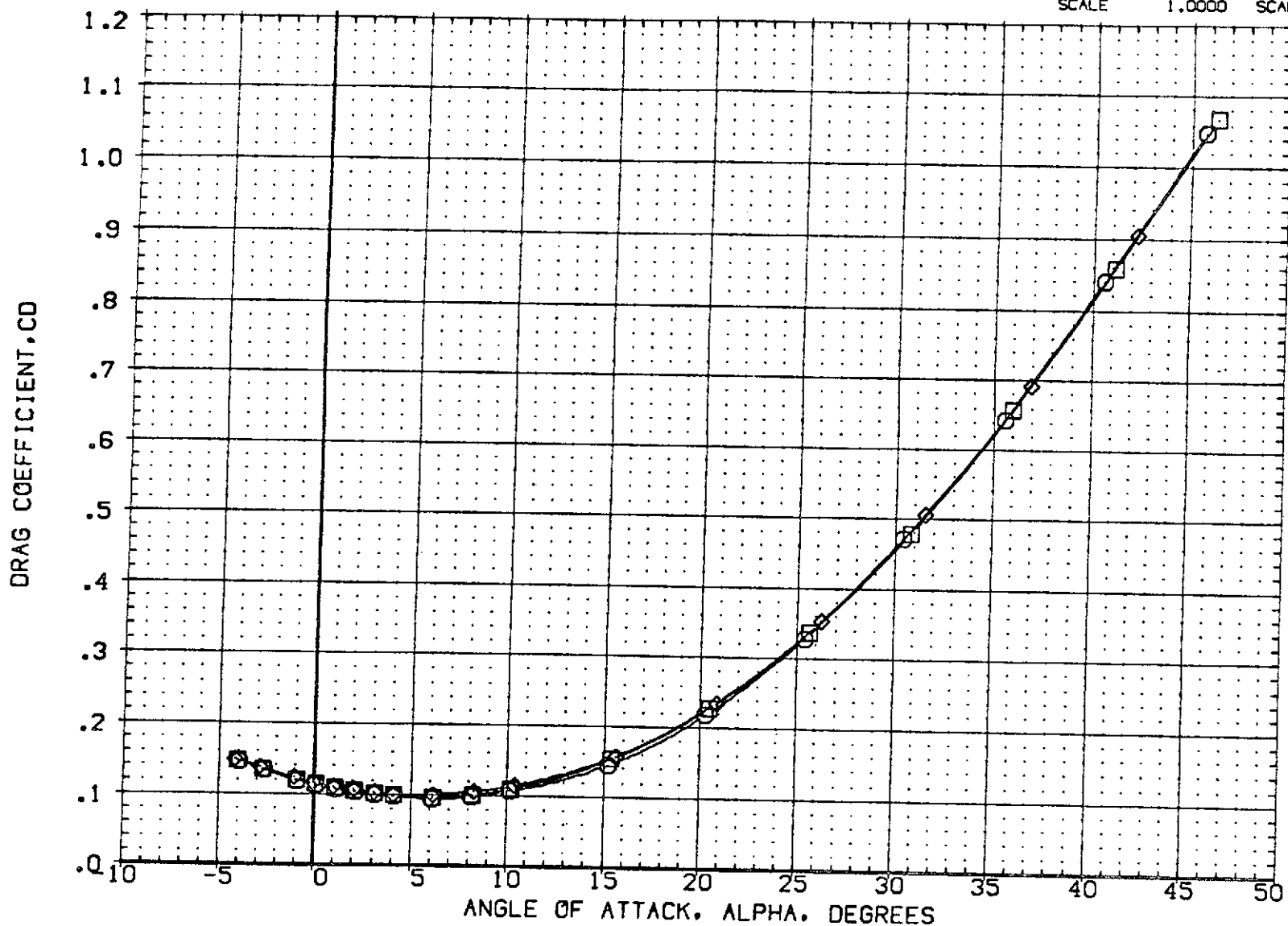


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	DATA NOT AVAILABLE
(K02012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

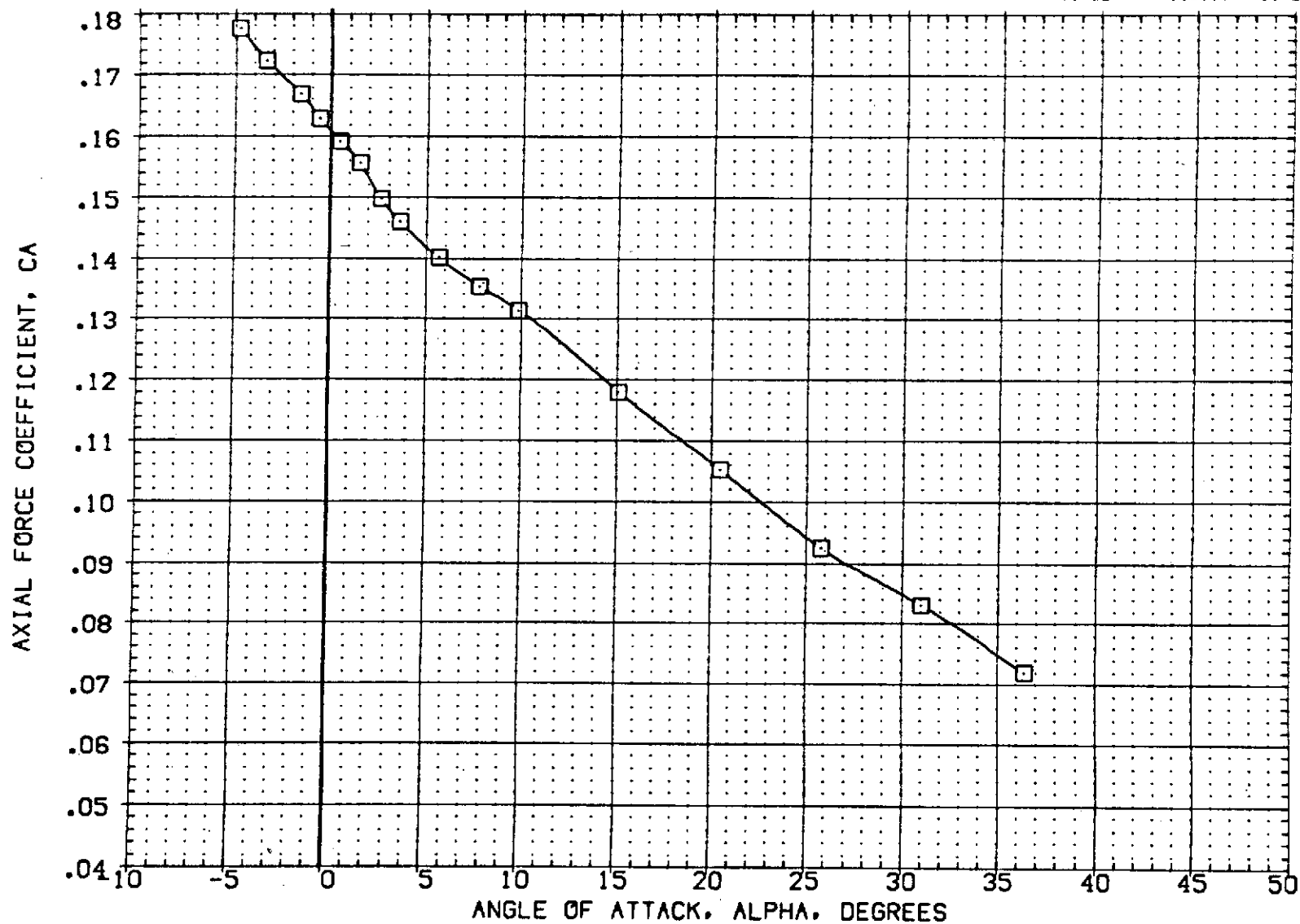


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	DATA NOT AVAILABLE
(K02012)	0A20C LRC UPWT 1057 -140A/B ORBITER
(K02013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	50.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

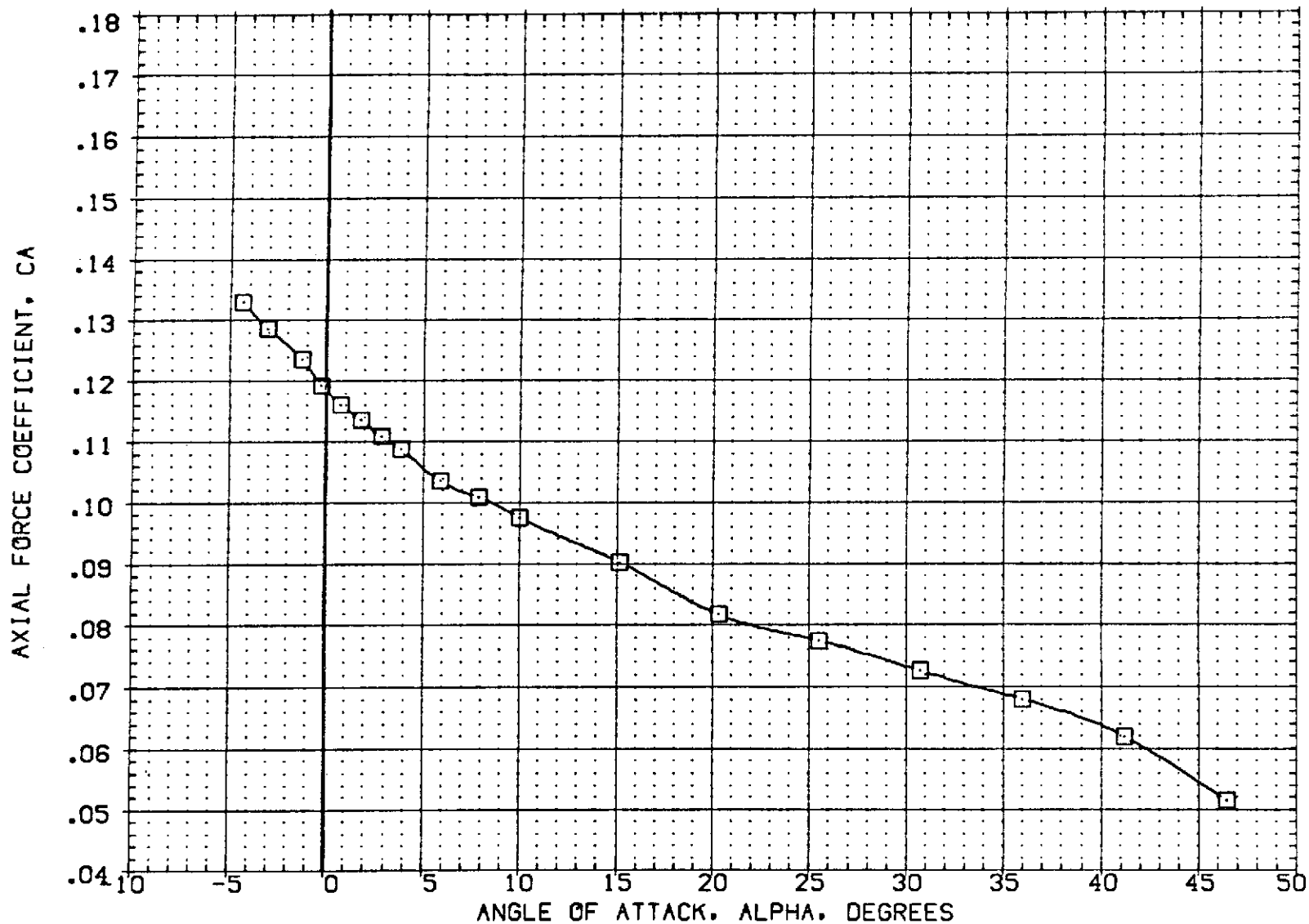


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2013)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	50. FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

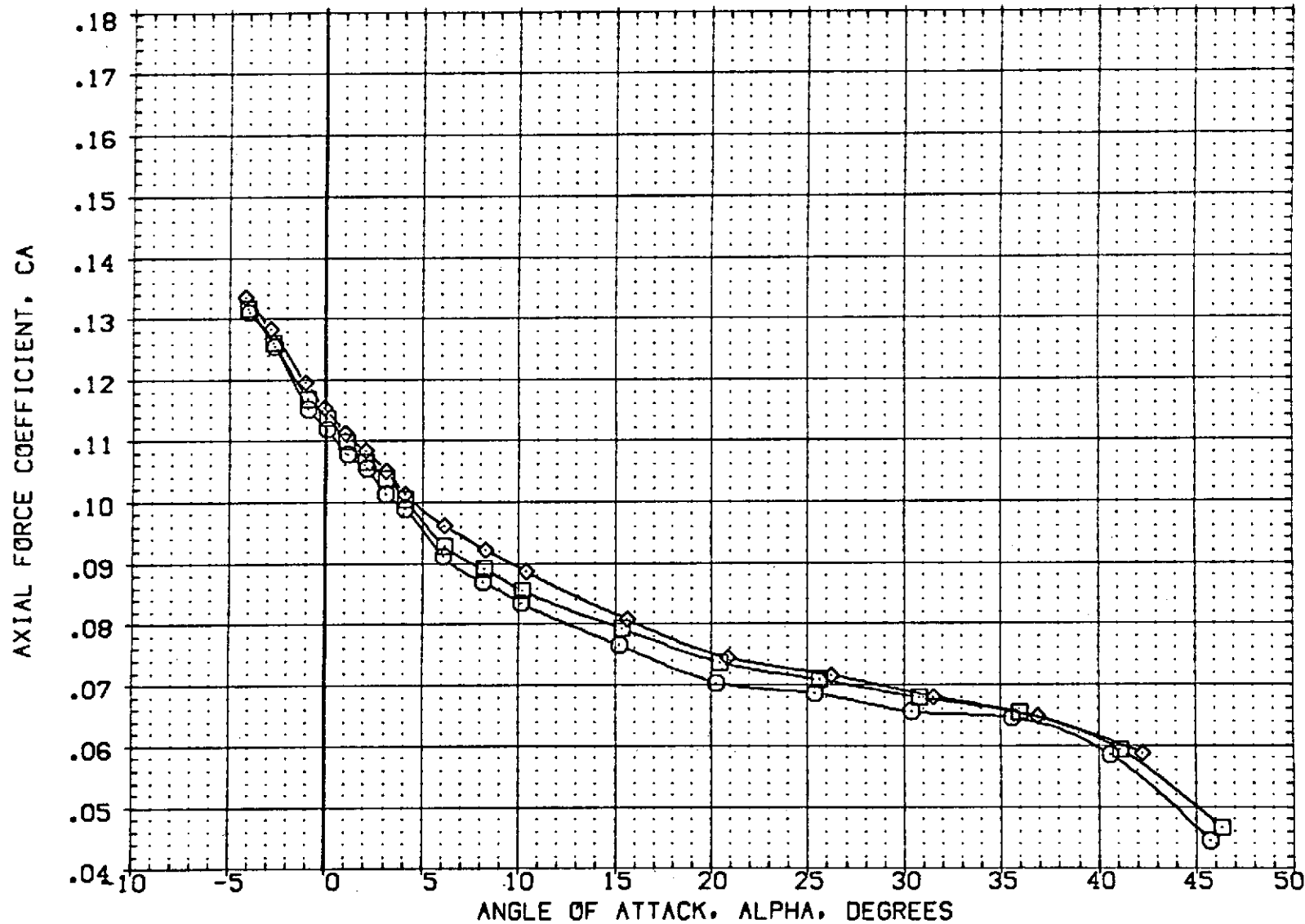


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	DATA NOT AVAILABLE
(K02012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION
1.250	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF 476.8117 IN.
5.000	-11.700	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

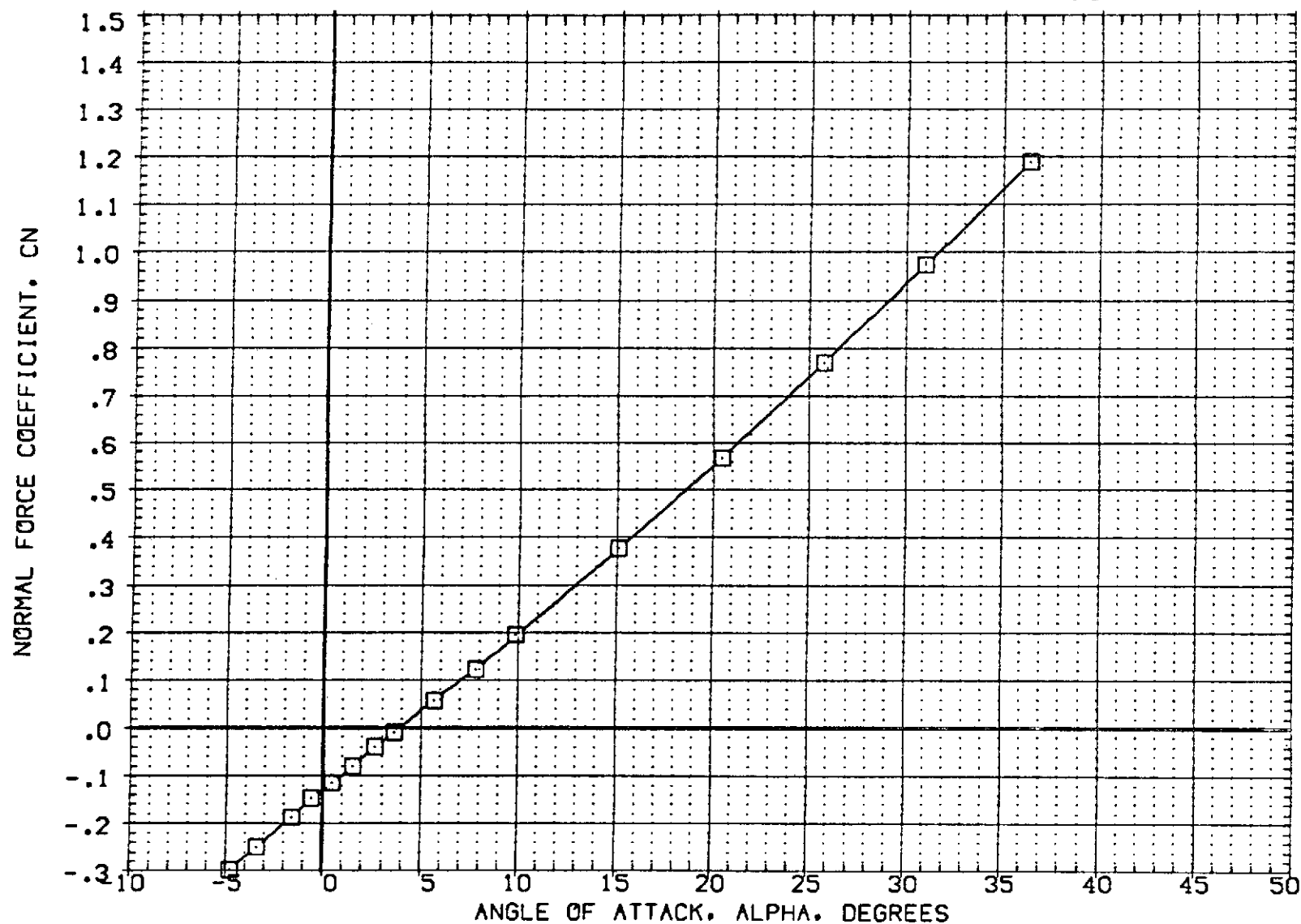


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014)	DATA NOT AVAILABLE
(KQ2012)	0A20C LRC UPWT 1057 -140A/B ORBITER
(KQ2013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

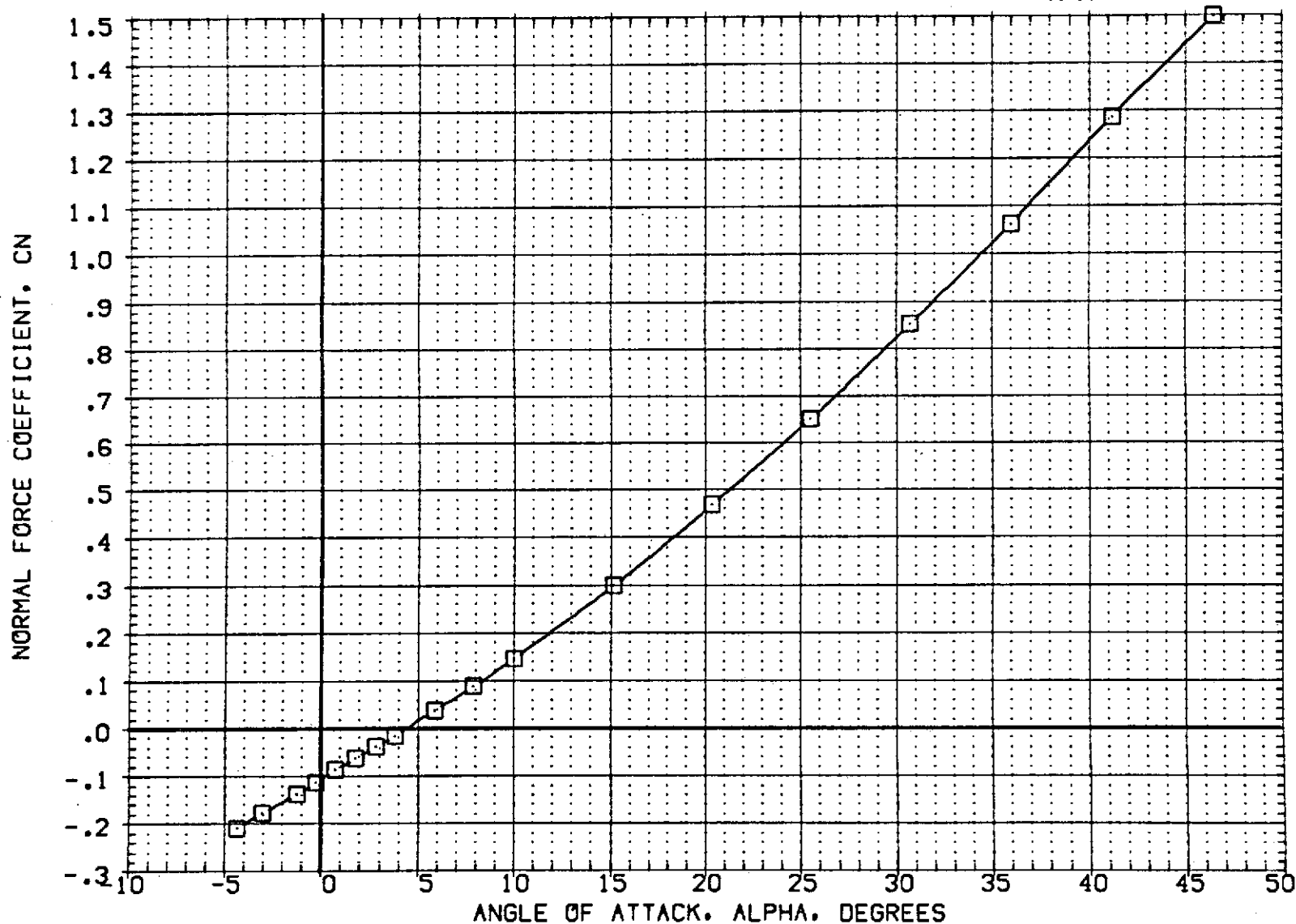


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)  
(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(KQ2014) □ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (KQ2012) □ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (KQ2013) ◇ OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

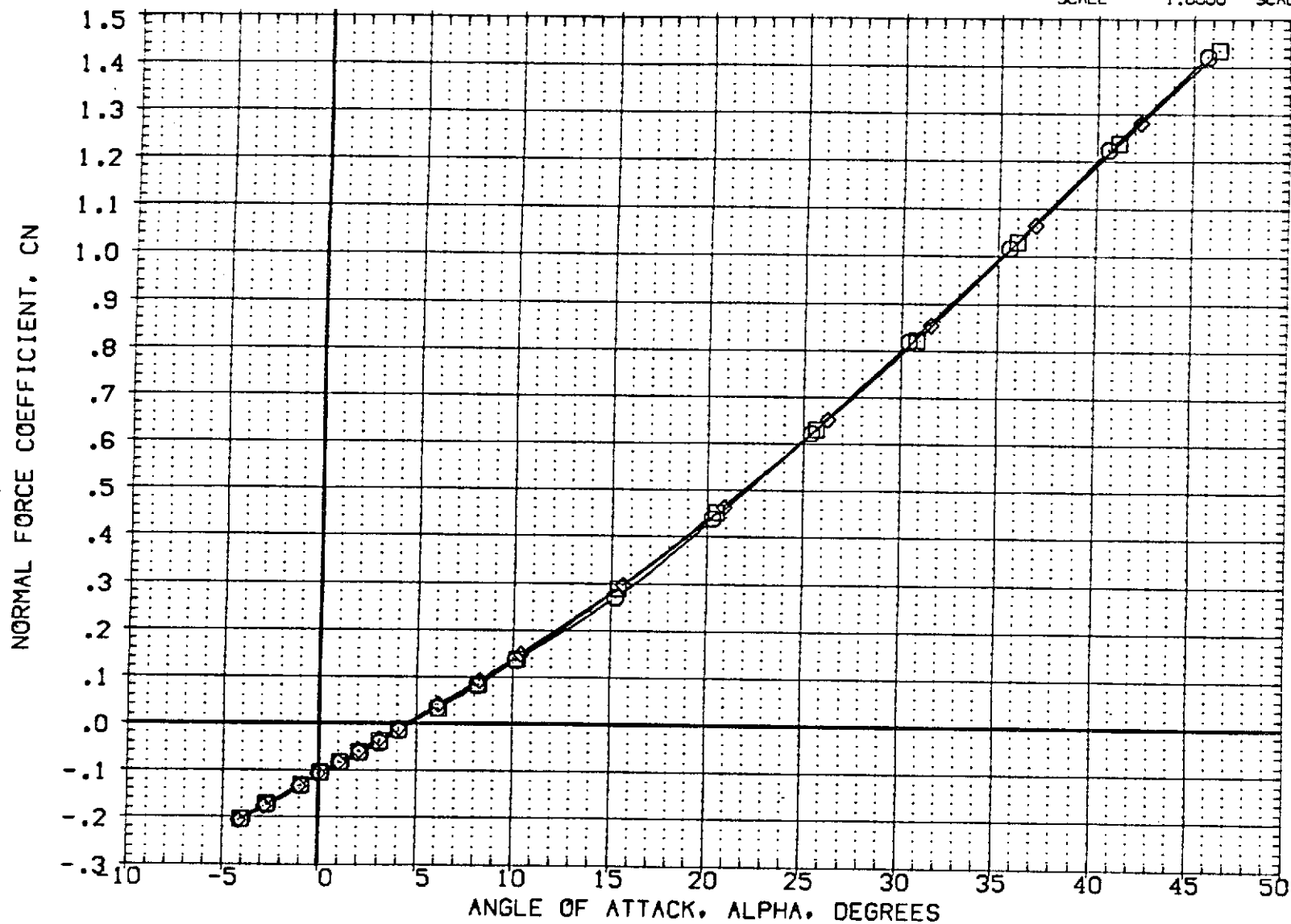


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[K02014]	DATA NOT AVAILABLE
[K02012]	DA20C LRC UPVT 1057 -140A/B ORBITER
[K02013]	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE



FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	DATA NOT AVAILABLE
(K02012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

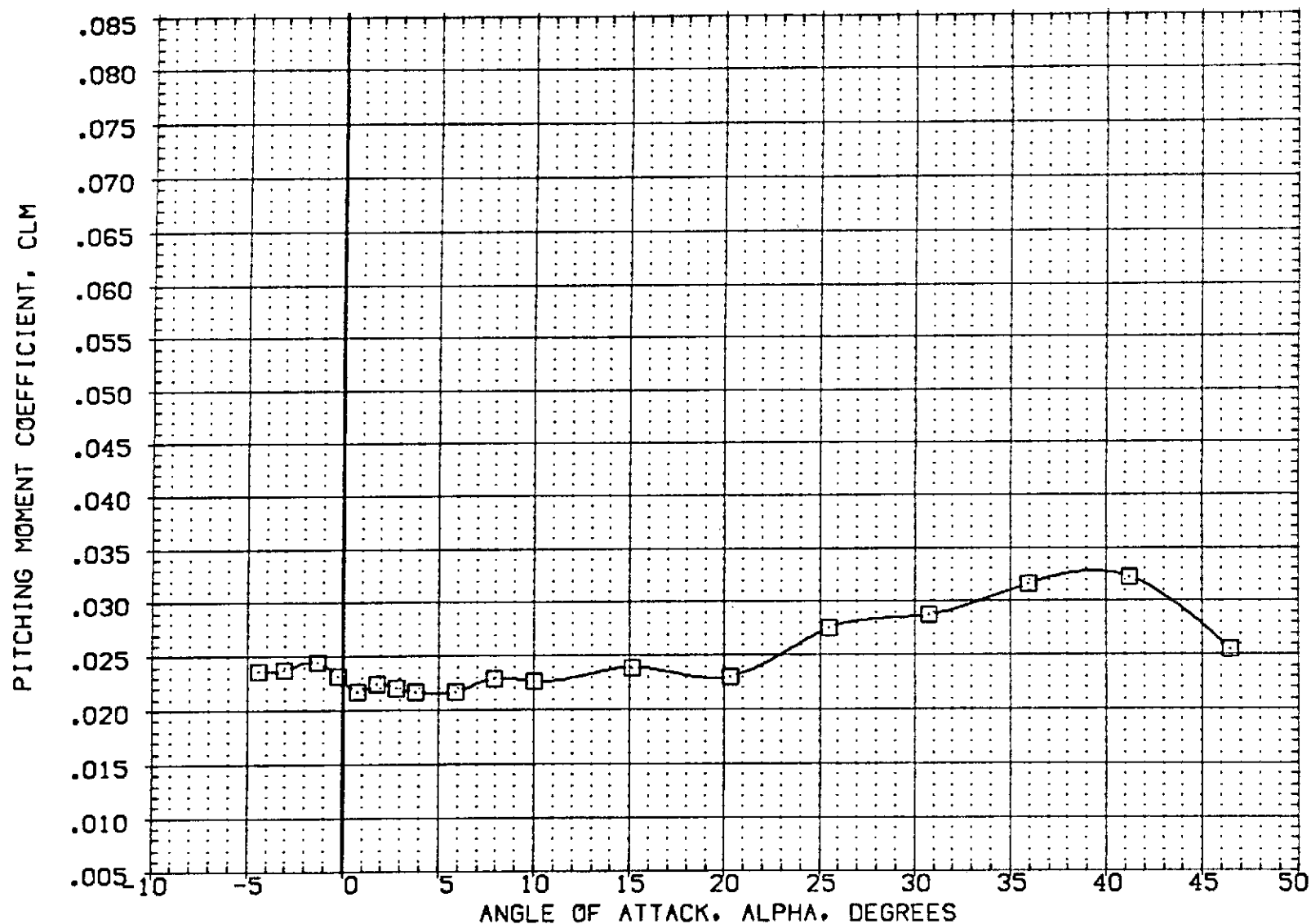


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(KQ2014) ○ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (KQ2012) □ OA20C LRC UPVT 1057 -140A/B ORBITER  
 (KQ2013) ◇ OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	50.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

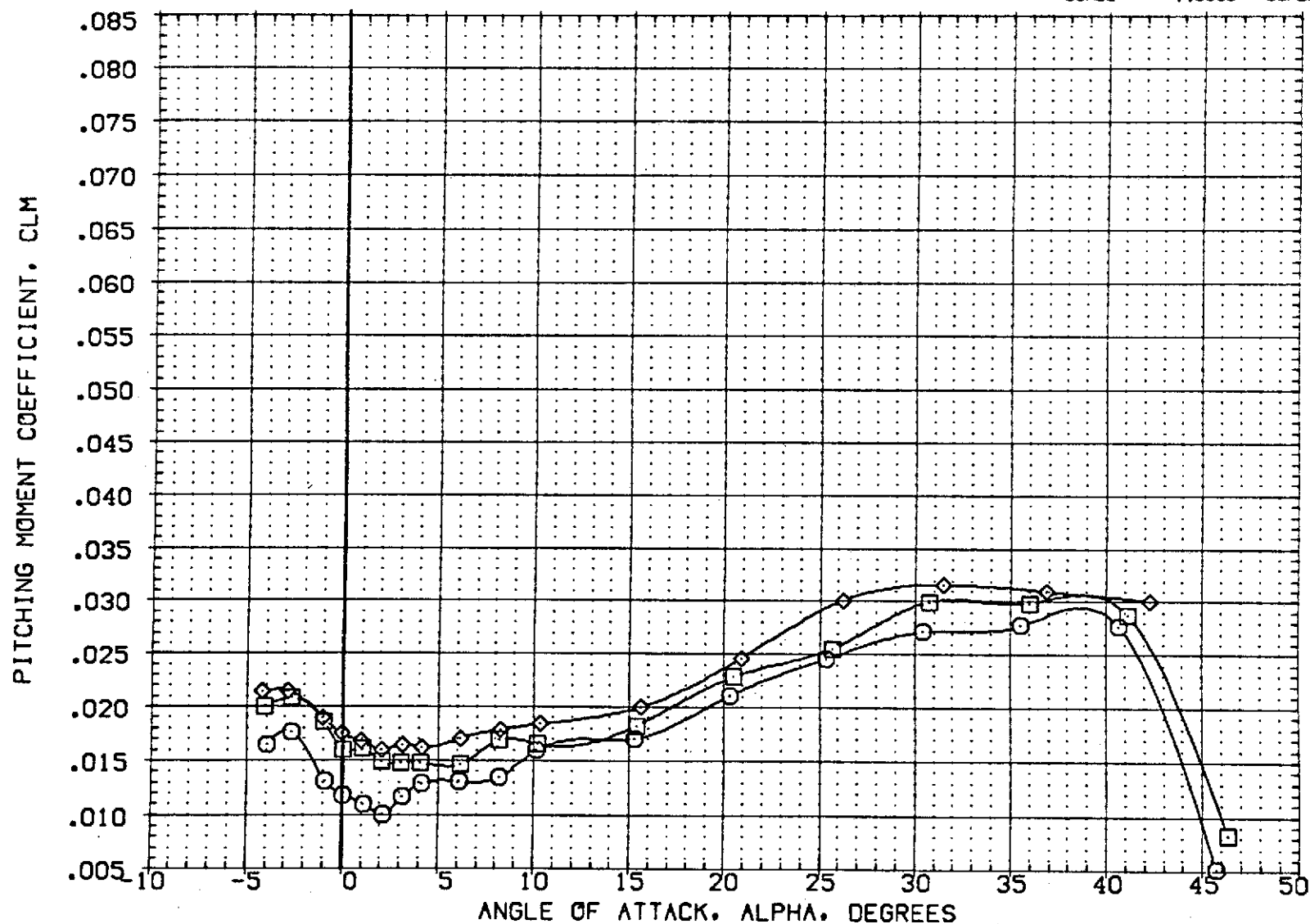


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (K02014) □ DATA NOT AVAILABLE  
 (K02012) □ 0A20C LRC UPWT 1057 -140A/B ORBITER  
 (K02013) ◇ DATA NOT AVAILABLE

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE



FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014)	DATA NOT AVAILABLE
(KQ2012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

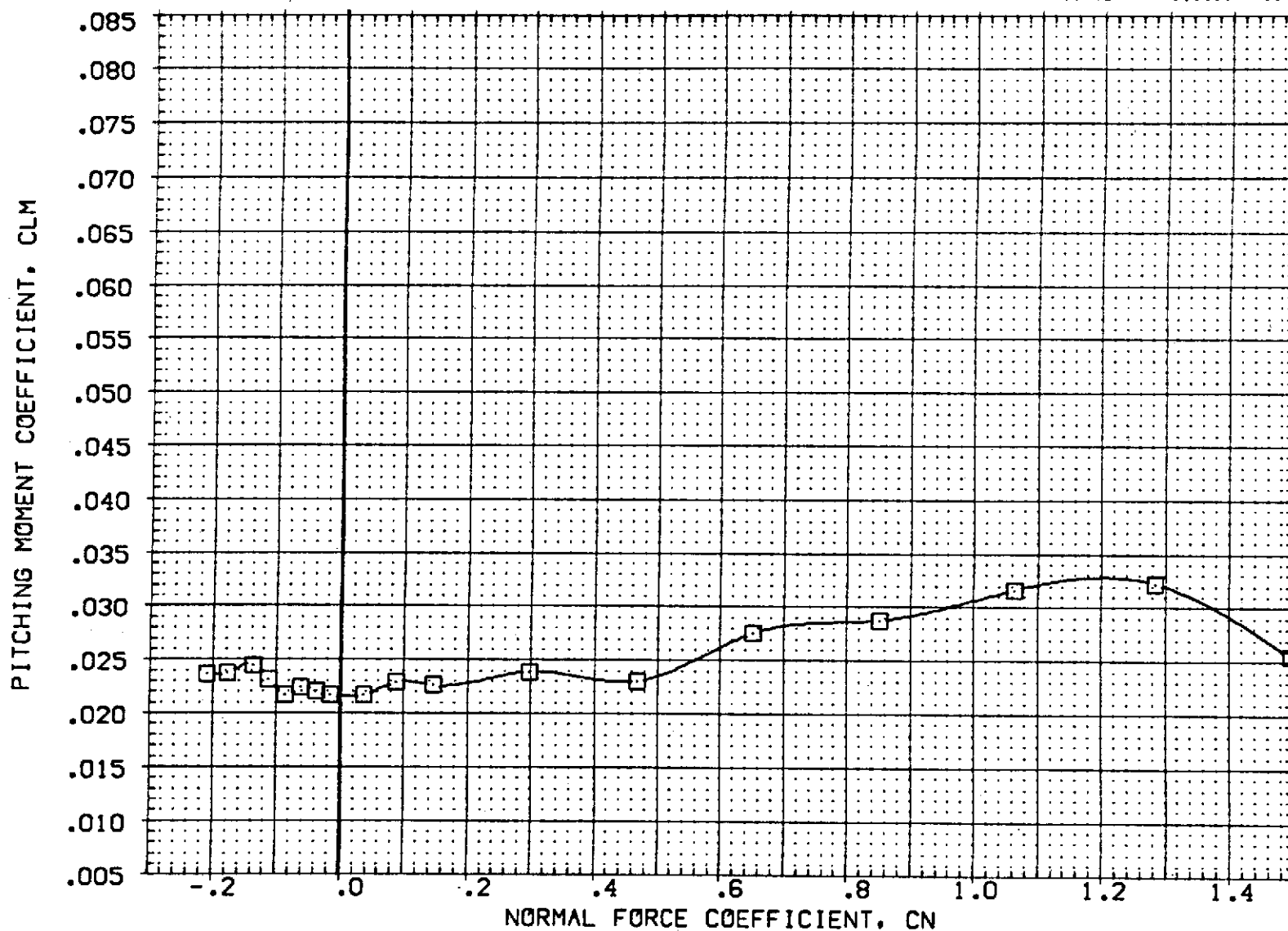


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)  
(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014) ○	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2012) □	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2013) ◇	0A20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

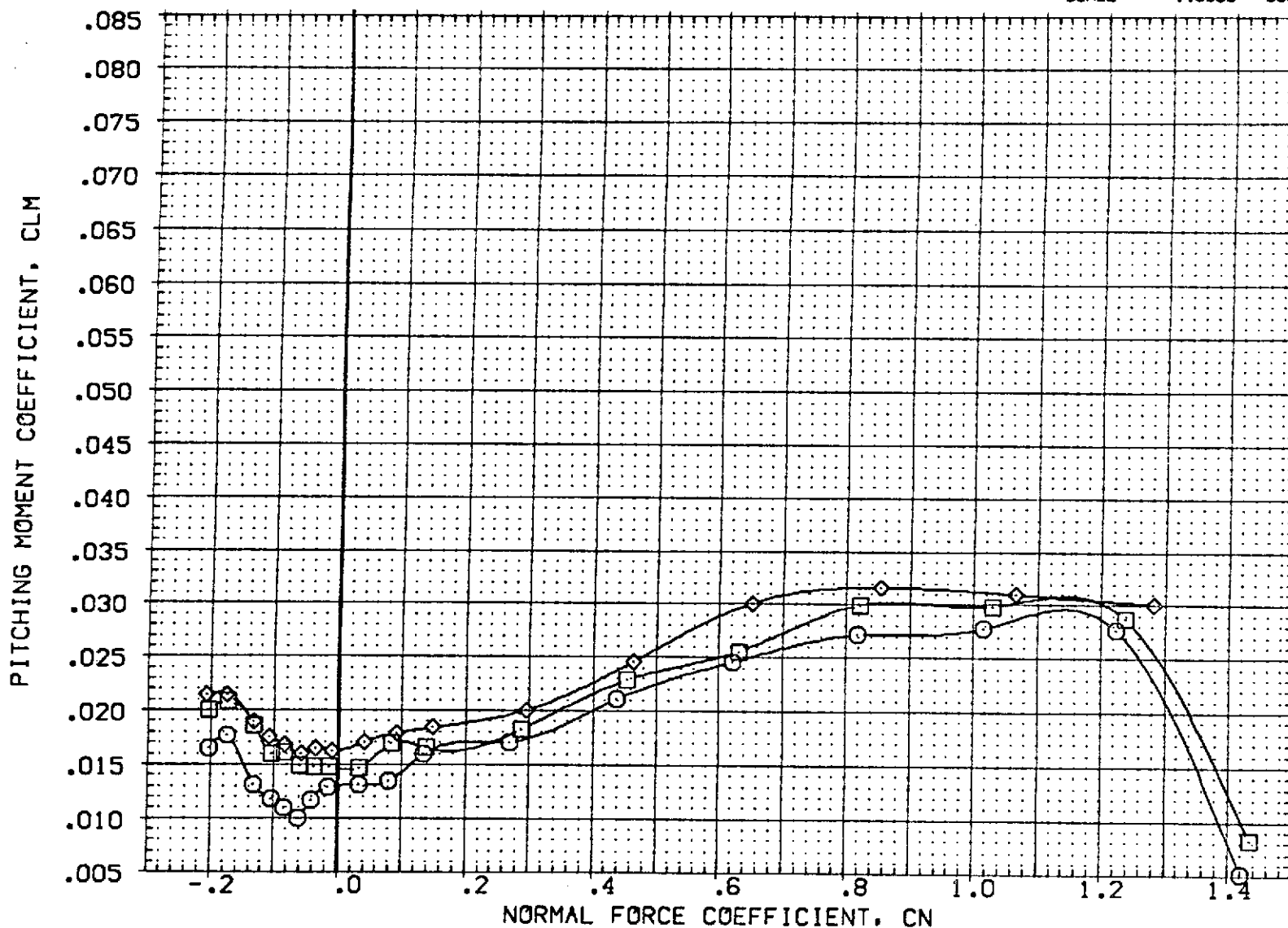


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	DATA NOT AVAILABLE
(K02012)	QA20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	DATA NOT AVAILABLE

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION
1.250	-11.700	54.920	.000	SREF 2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF 476.8117 IN.
5.000	-11.700	54.920	.000	BREF 936.6816 IN.
				XMRP 1076.4800 IN.
				YMRP .0000 IN.
				ZMRP 375.0000 IN.
				SCALE 1.0000 SCALE

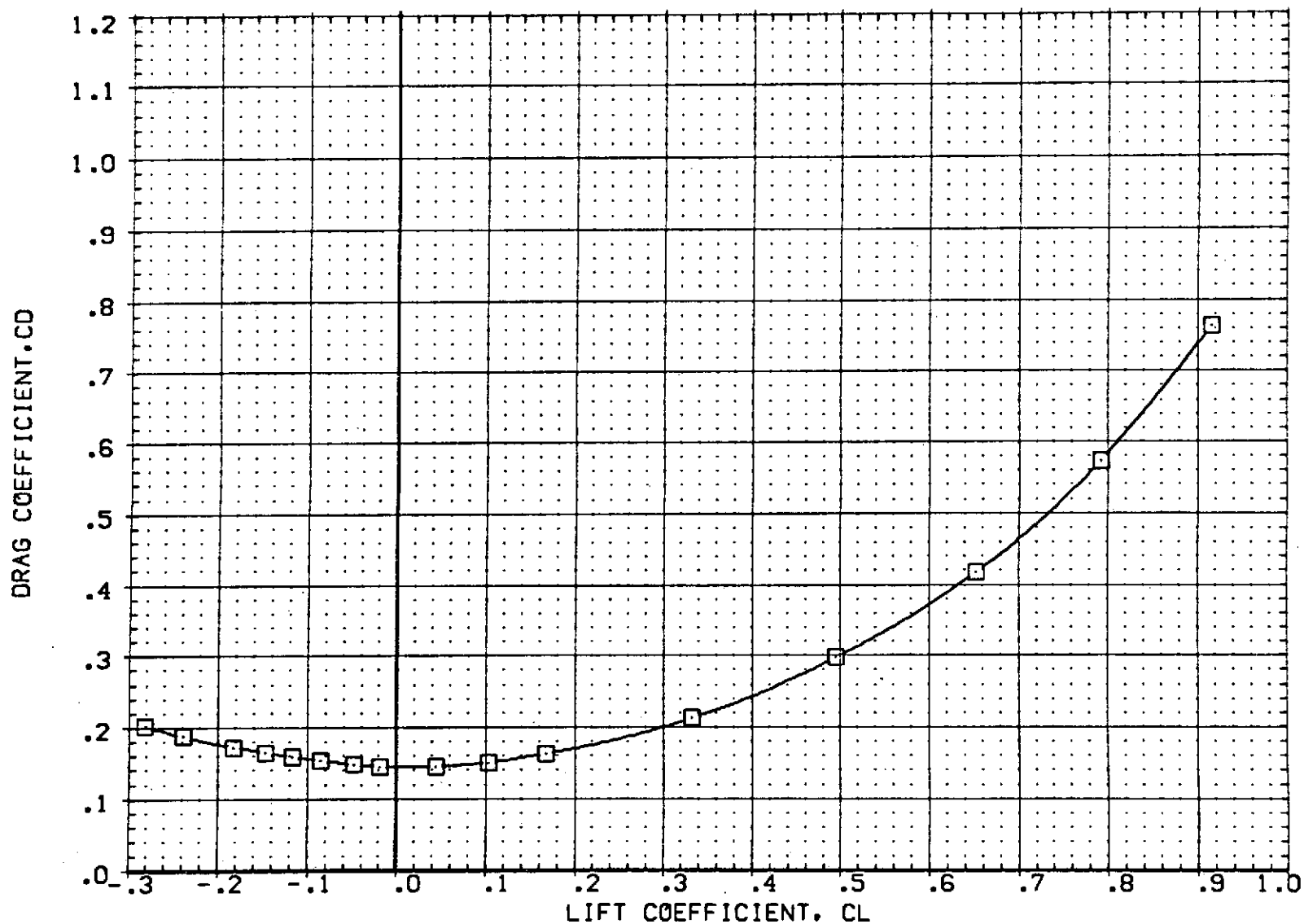


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A) MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2014)	DATA NOT AVAILABLE
(KQ2012)	0A20C LRC UPVT 1057 -140A/B ORBITER
(KQ2013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

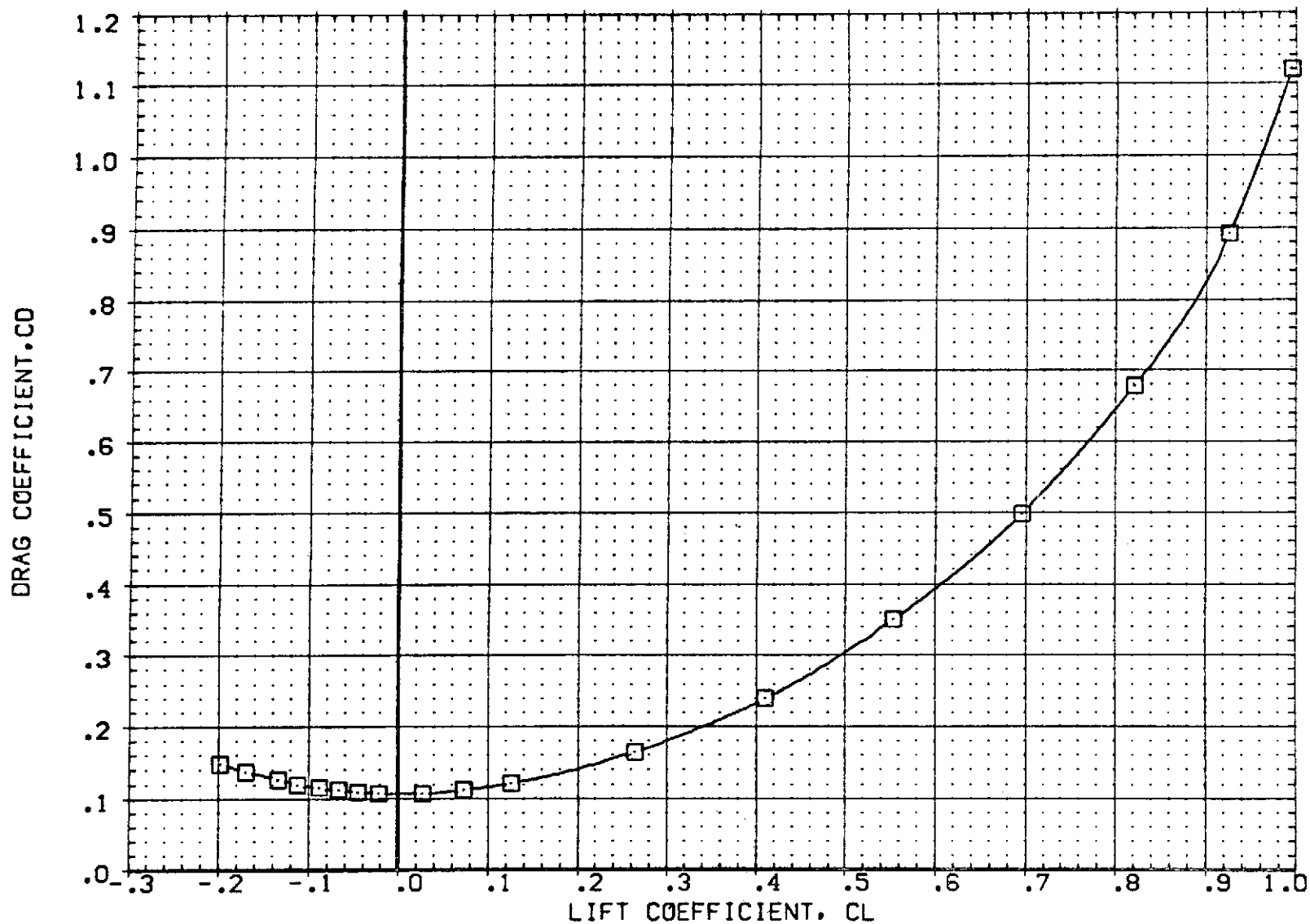


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

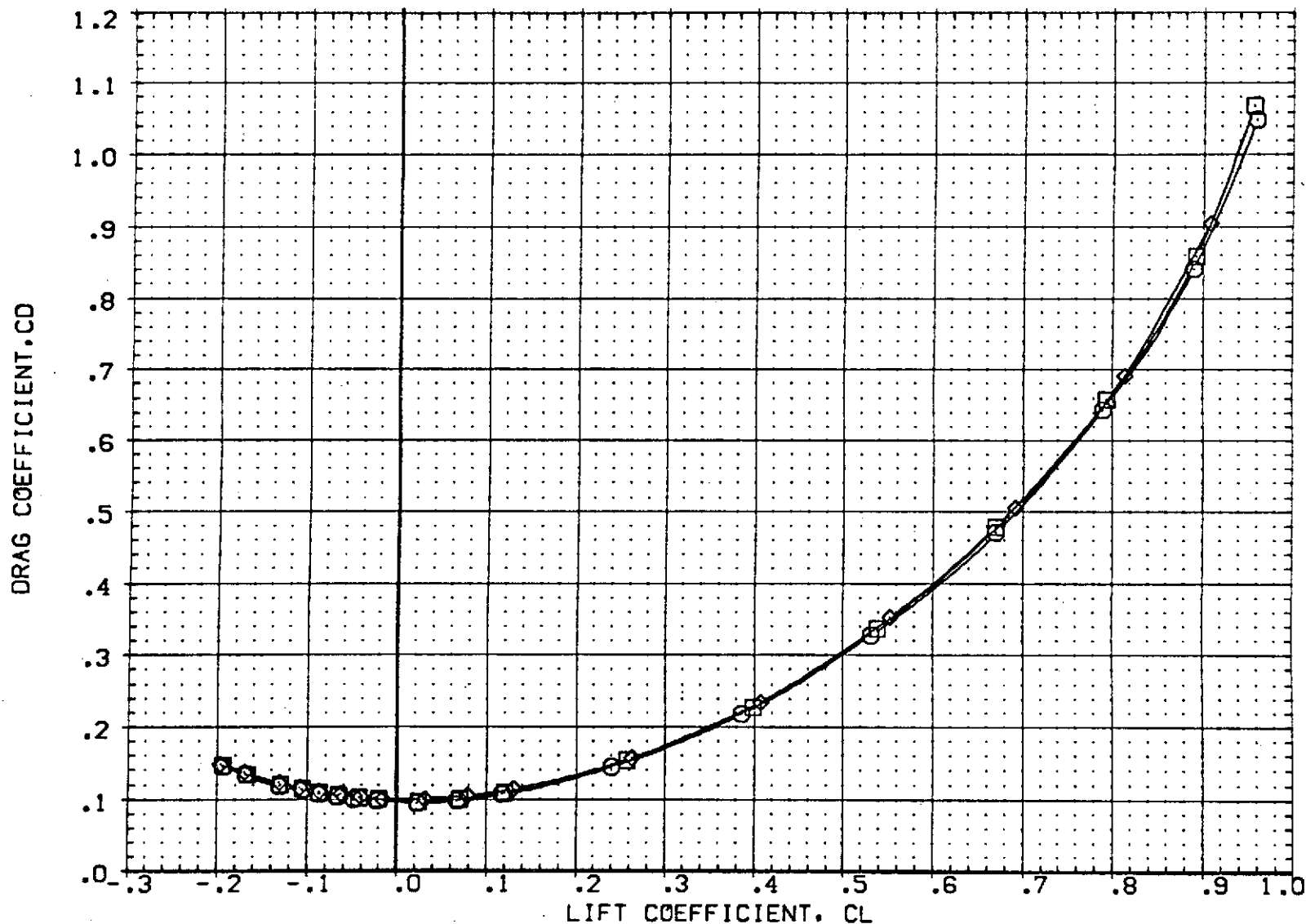


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{K02014}	○ DATA NOT AVAILABLE
{K02012}	□ OA20C LRC UPWT 1057 -140A/B ORBITER
{K02013}	◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

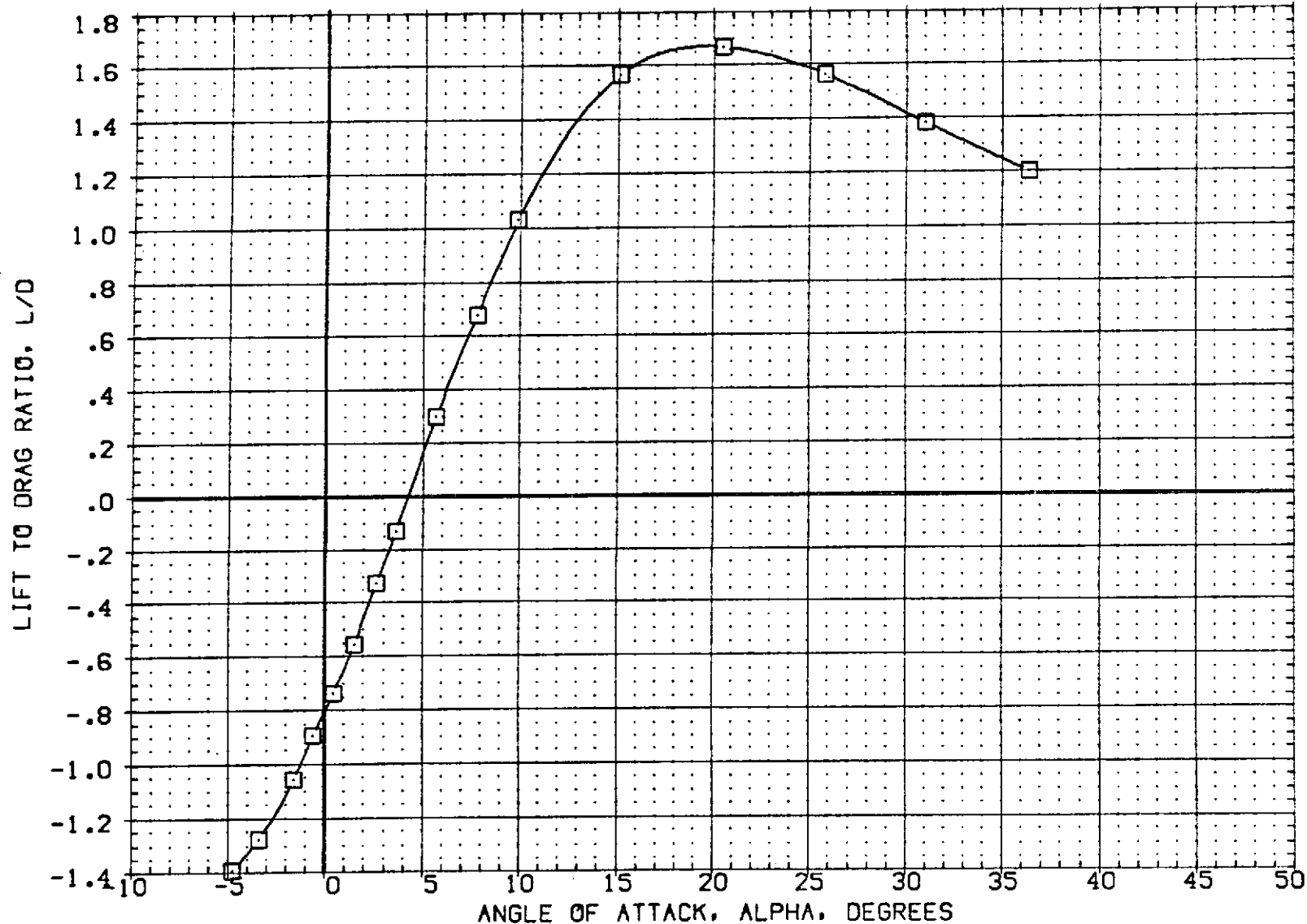


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[K02014]	DATA NOT AVAILABLE
[K02012]	0A20C LRC UPWT 1057 -140A/B ORBITER
[K02013]	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1076.4800	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

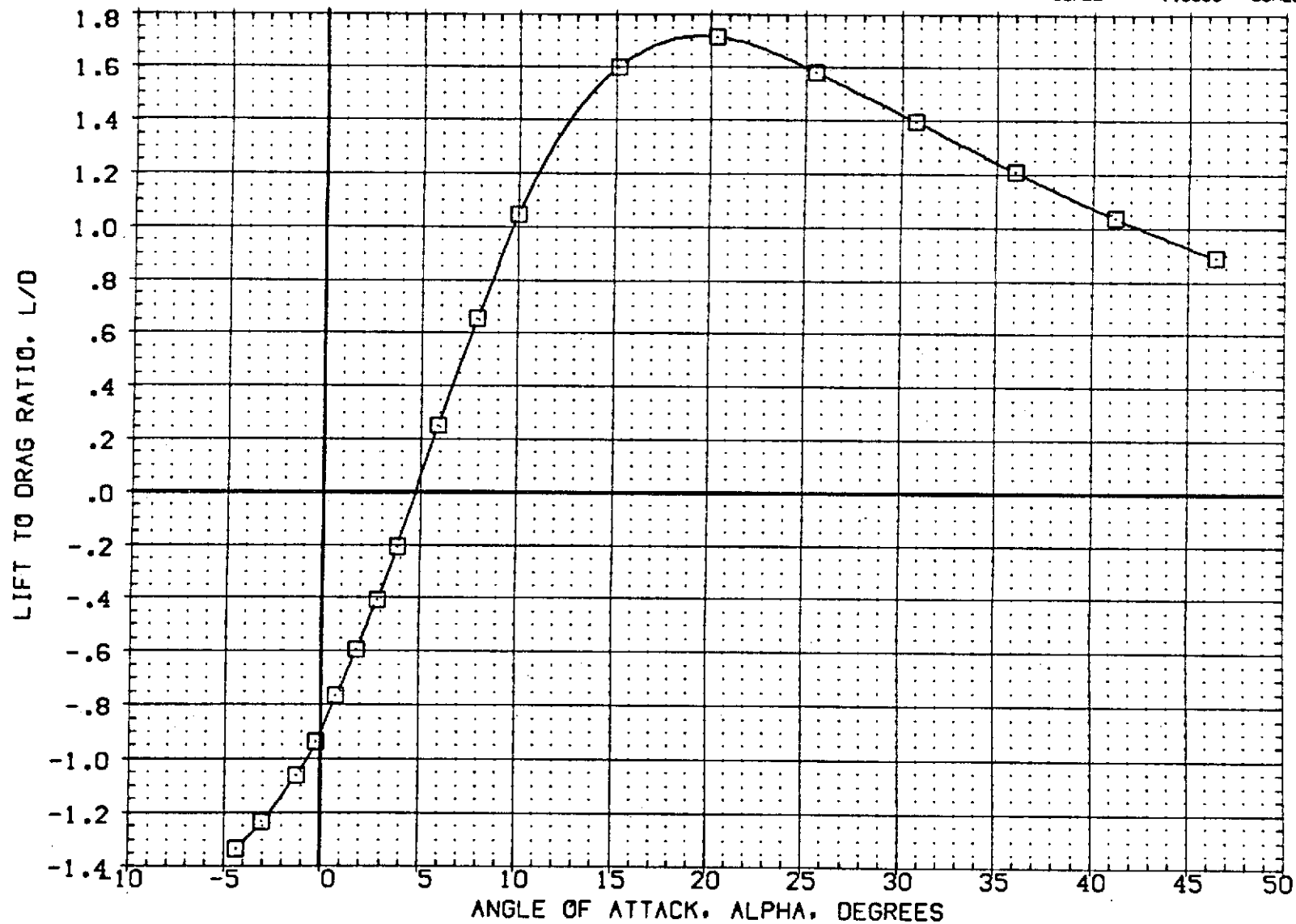


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02014)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02012)	OA20C LRC UPVT 1057 -140A/B ORBITER
(K02013)	OA20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

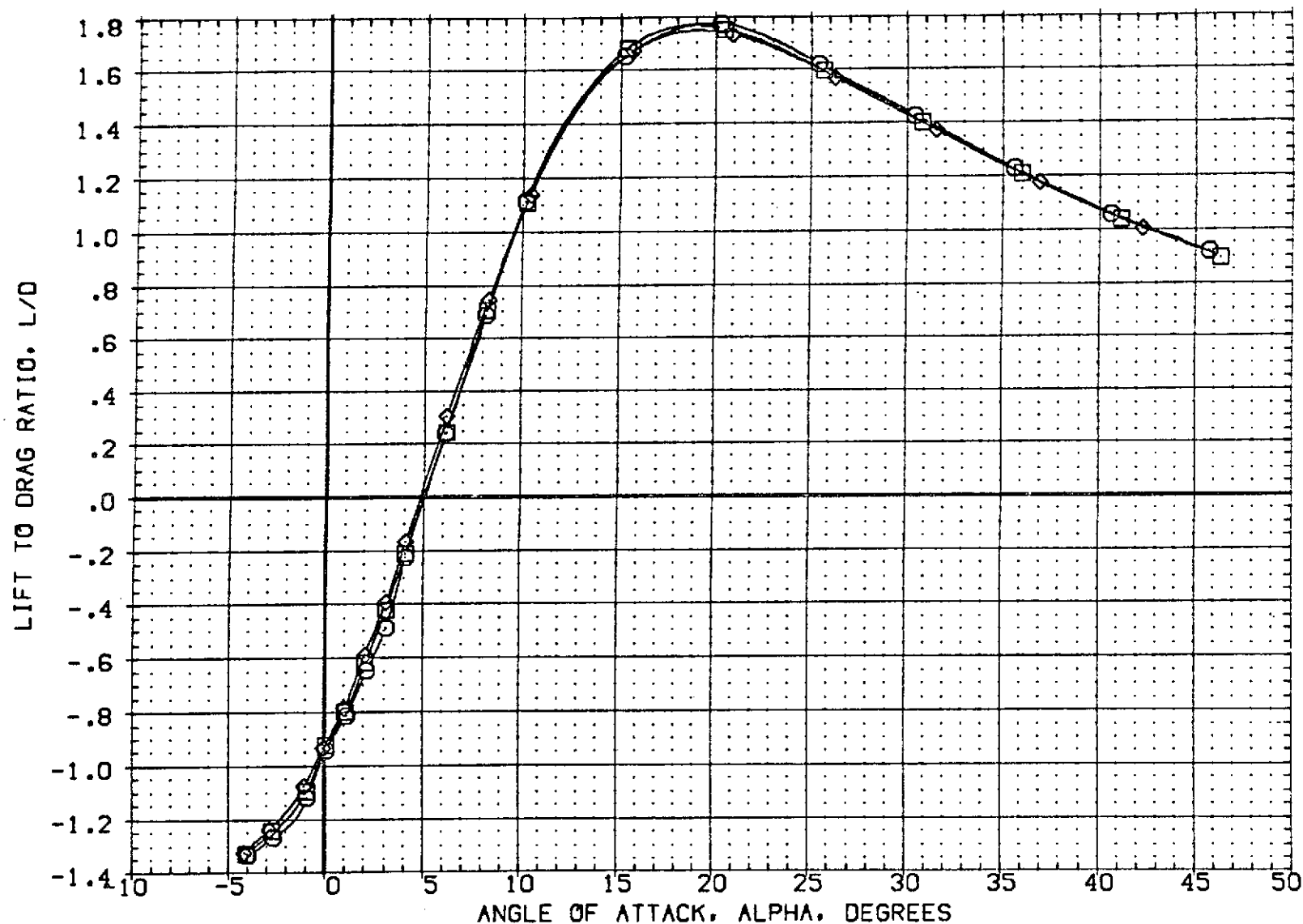


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
[EQ2014]	DATA NOT AVAILABLE
[EQ2012]	0A20C LRC UPWT 1057 -140A/B ORBITER
[EQ2013]	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

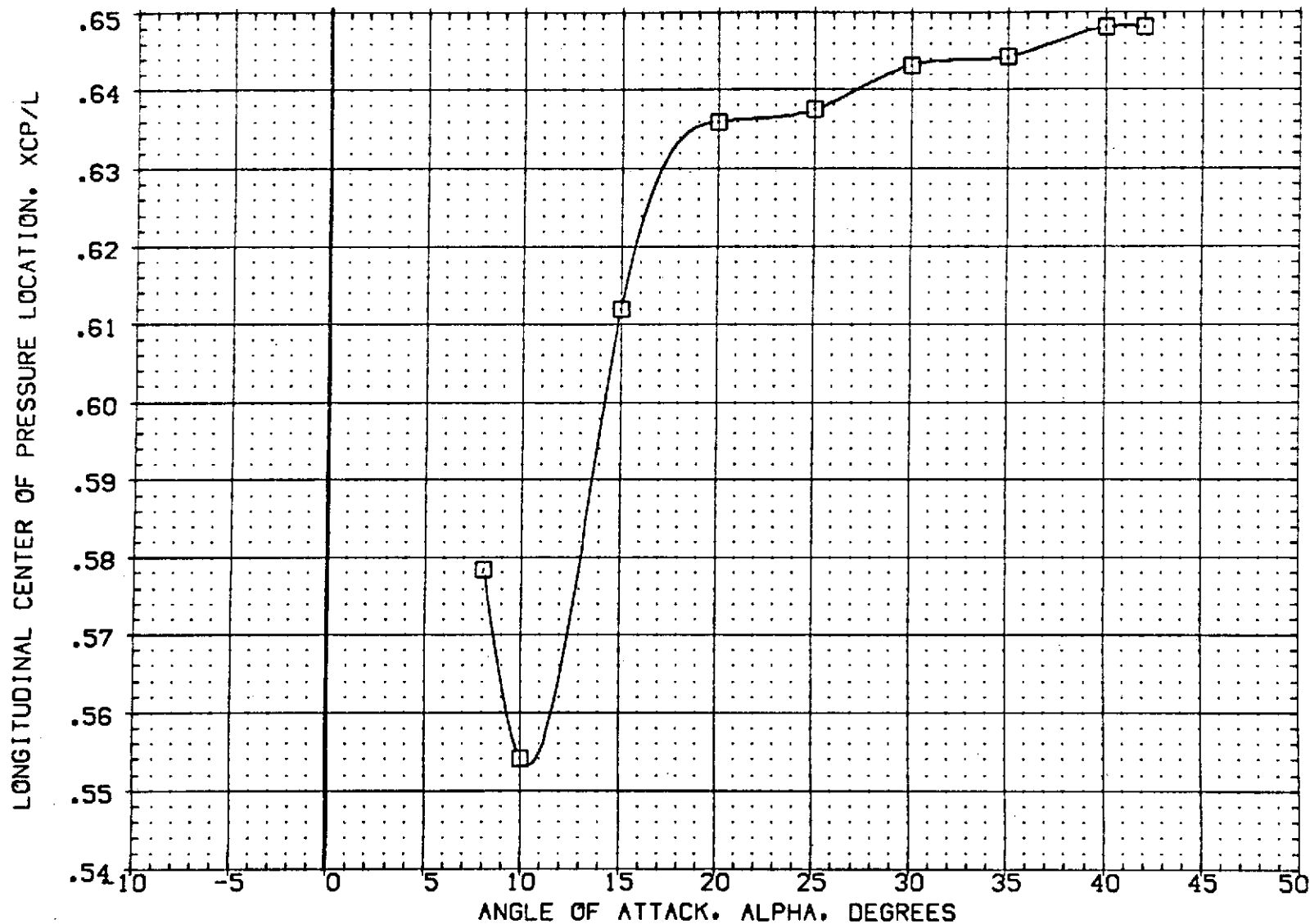


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (EQ2014) ○ DATA NOT AVAILABLE  
 (EQ2012) □ GA20C LRC UPWT 1057 -140A/B ORBITER  
 (EQ2013) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPOBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

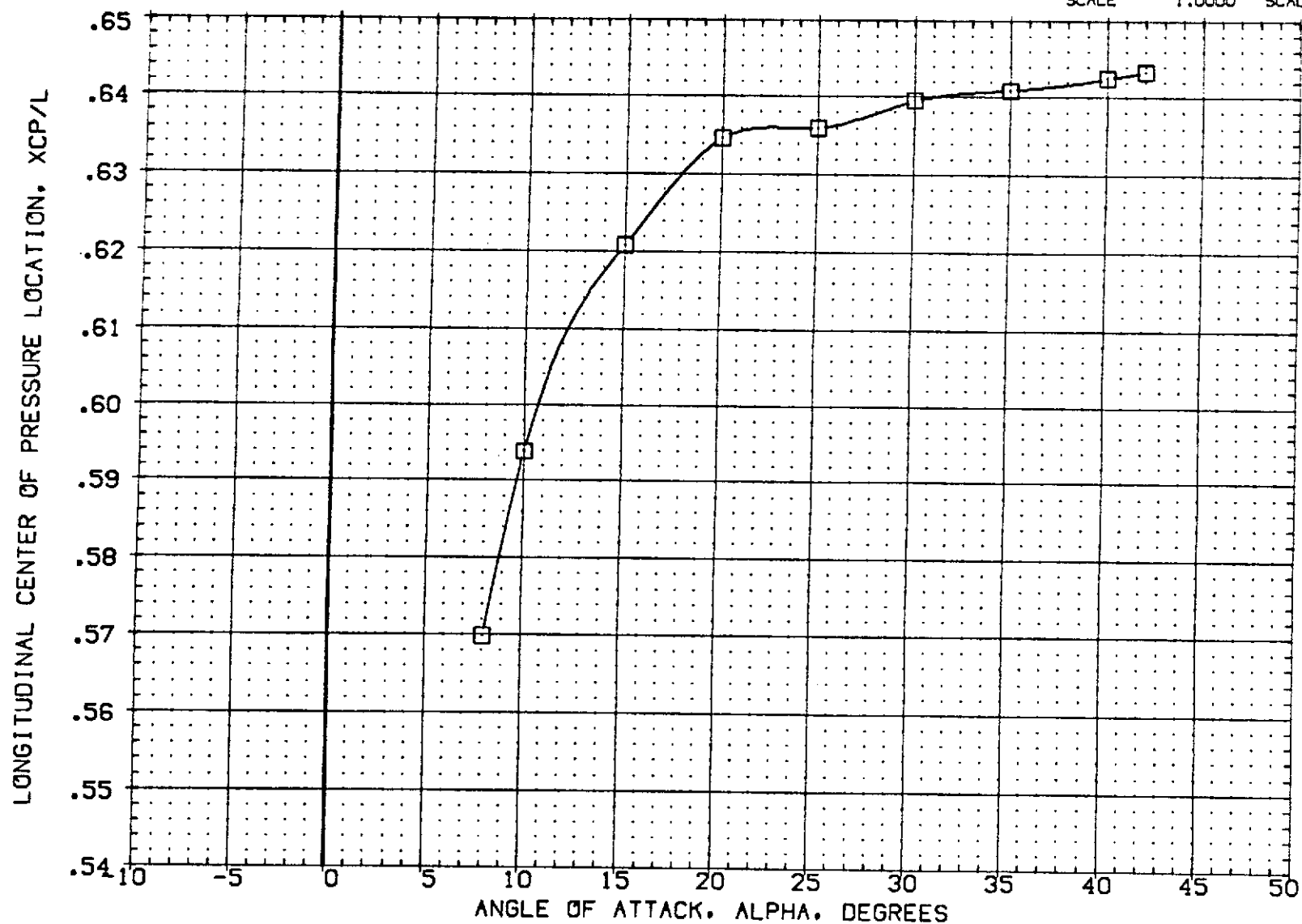


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(EQ2014)	○	0A20C LRC UPVT 1057 -140A/B ORBITER
(EQ2012)	□	0A20C LRC UPVT 1057 -140A/B ORBITER
(EQ2013)	◇	0A20C LRC UPVT 1057 -140A/B ORBITER

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1076.4800 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

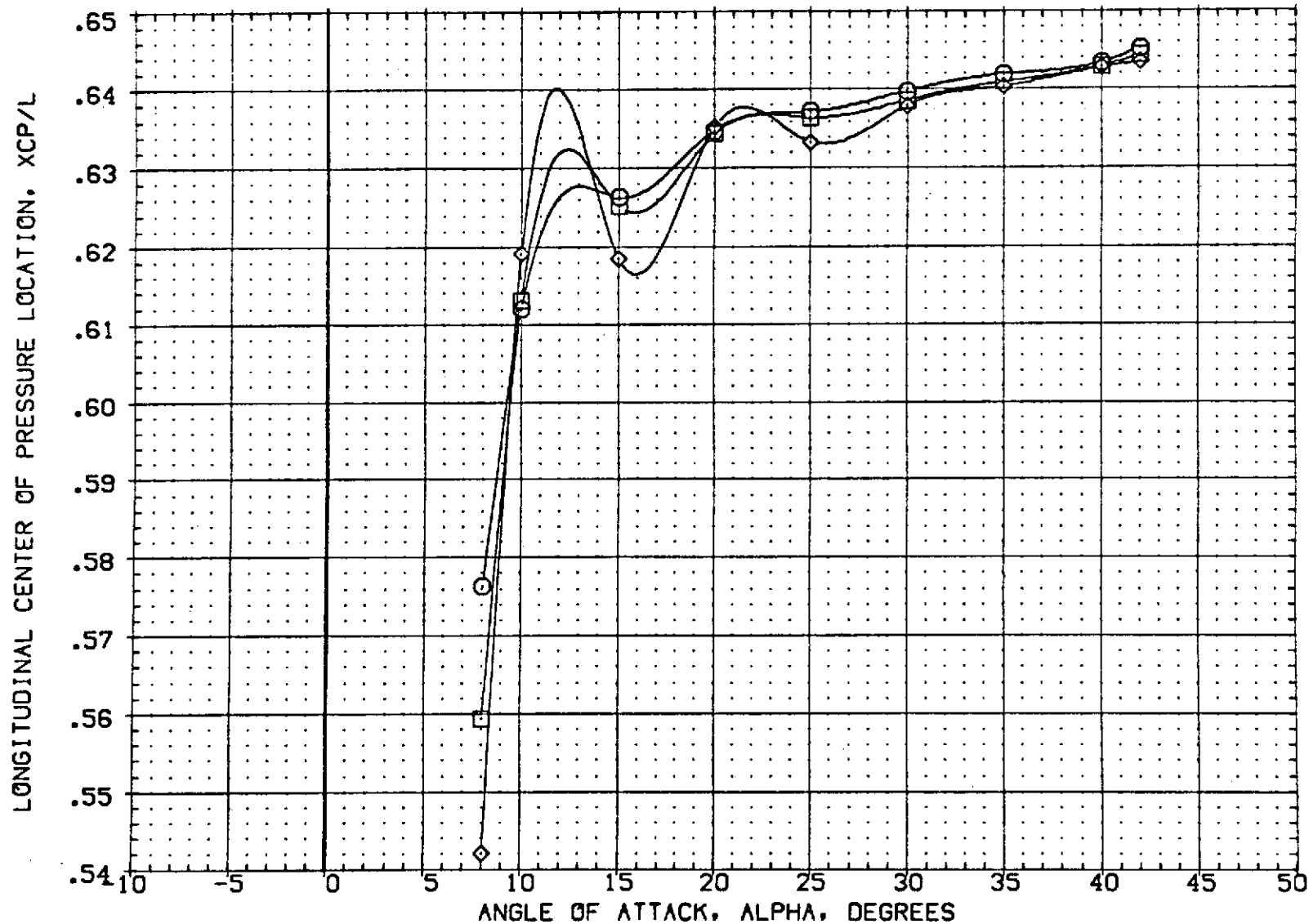


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (P02014) □ DATA NOT AVAILABLE  
 (P02012) □ OA20C LRC UPWT 1057 -140A/B ORBITER  
 (P02013) ◇ DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION	
1.250	-11.700	54.920	.000	SREF	2690.0000 SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117 IN.
5.000	-11.700	54.920	.000	BREF	936.6816 IN.
				XMRP	1108.9500 IN.
				YMRP	.0000 IN.
				ZMRP	375.0000 IN.
				SCALE	1.0000 SCALE

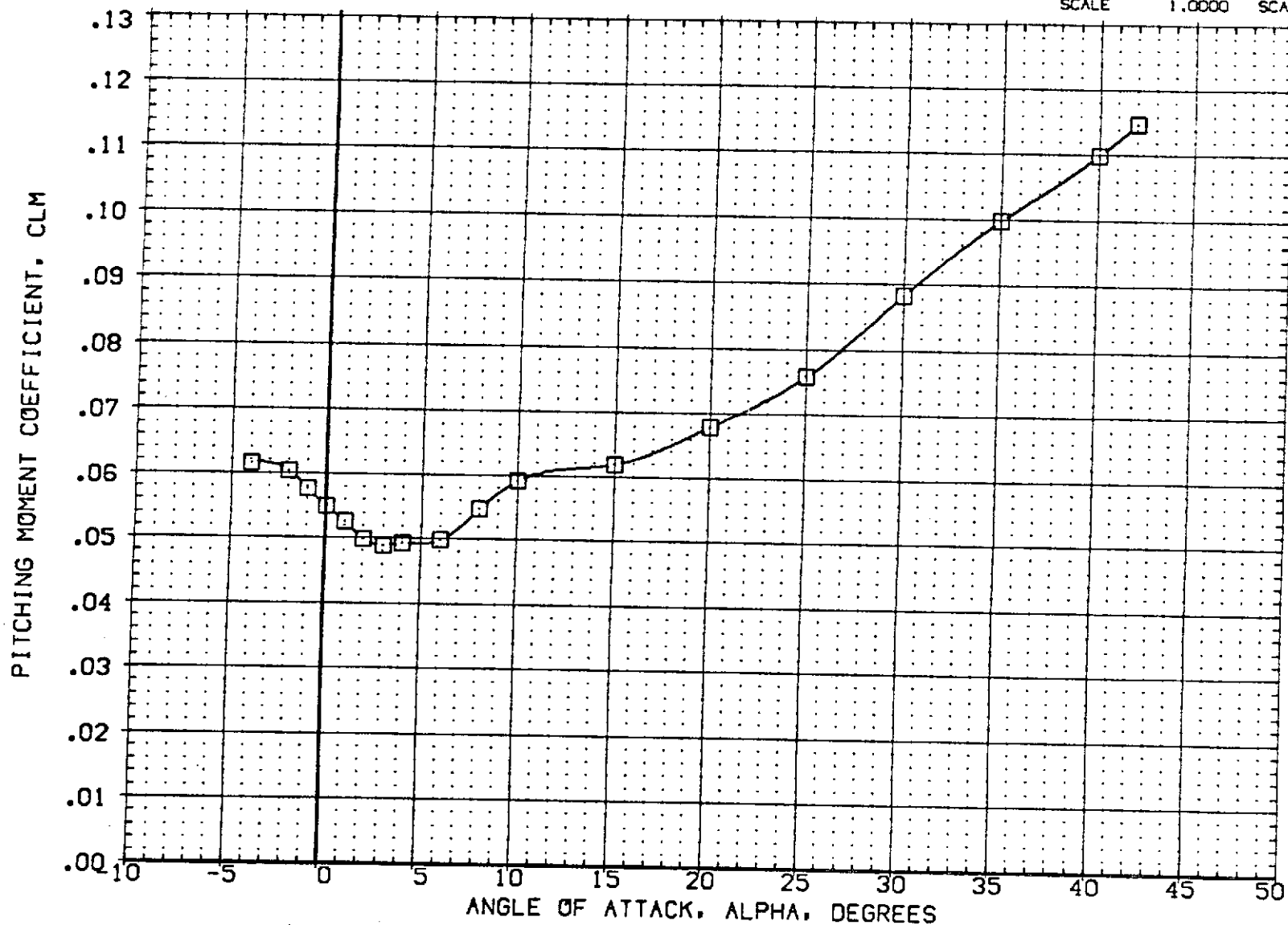


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(PQ2014)	DATA NOT AVAILABLE
(PQ2012)	DA20C LRC UPVT 1057 -140A/B ORBITER
(PQ2013)	DATA NOT AVAILABLE

R/L	BOFLAP	SPDBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

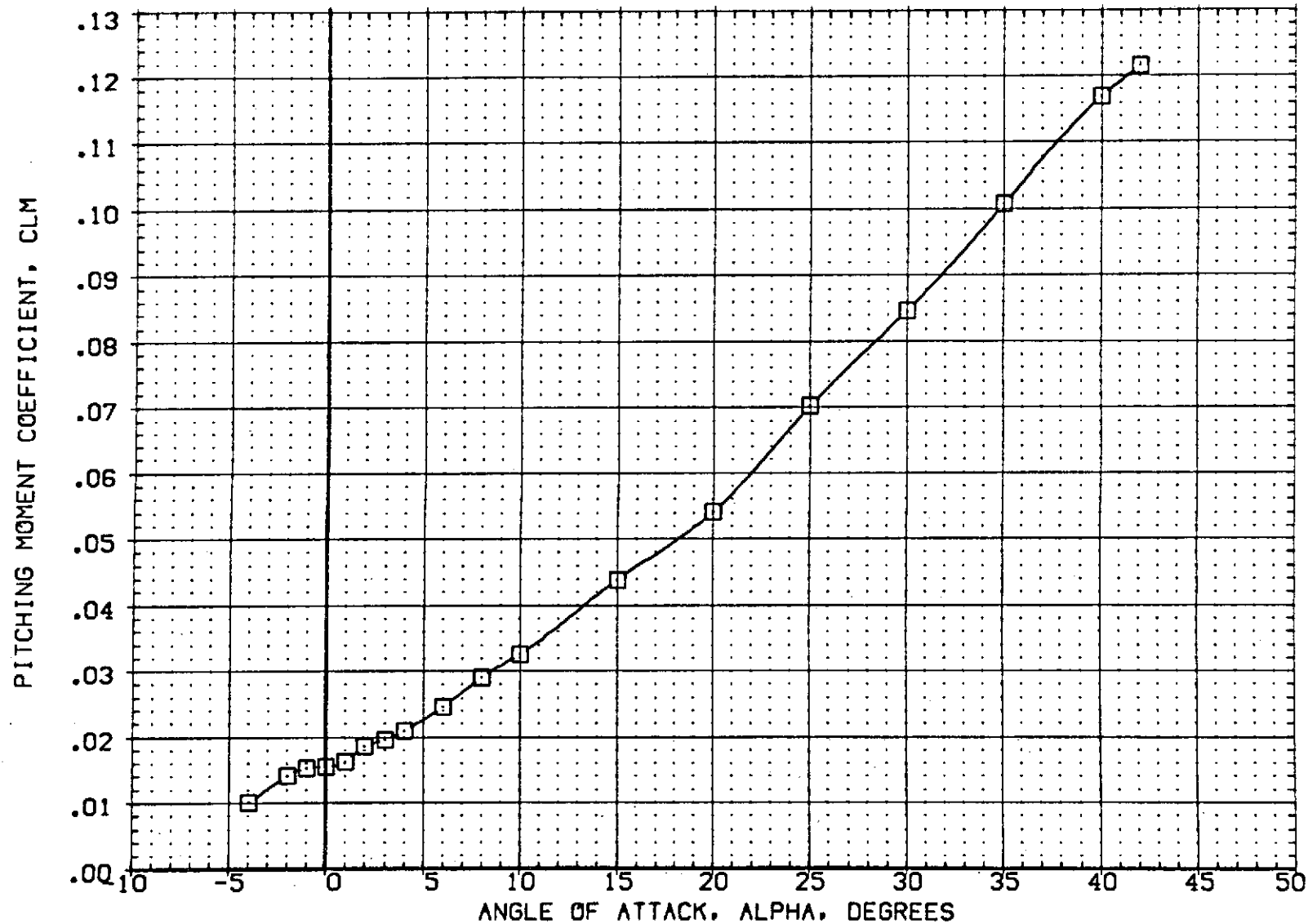


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(B)MACH = 3.90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(P02014)	OA20C LRC UPWT 1057 -140A/B ORBITER
(P02012)	OA20C LRC UPWT 1057 -140A/B ORBITER
(P02013)	OA20C LRC UPWT 1057 -140A/B ORBITER

R/L	BDFLAP	SPOBRK	AILRON	REFERENCE INFORMATION		
1.250	-11.700	54.920	.000	SREF	2690.0000	SQ.FT.
2.500	-11.700	54.920	.000	LREF	476.8117	IN.
5.000	-11.700	54.920	.000	BREF	936.6816	IN.
				XMRP	1108.9500	IN.
				YMRP	.0000	IN.
				ZMRP	375.0000	IN.
				SCALE	1.0000	SCALE

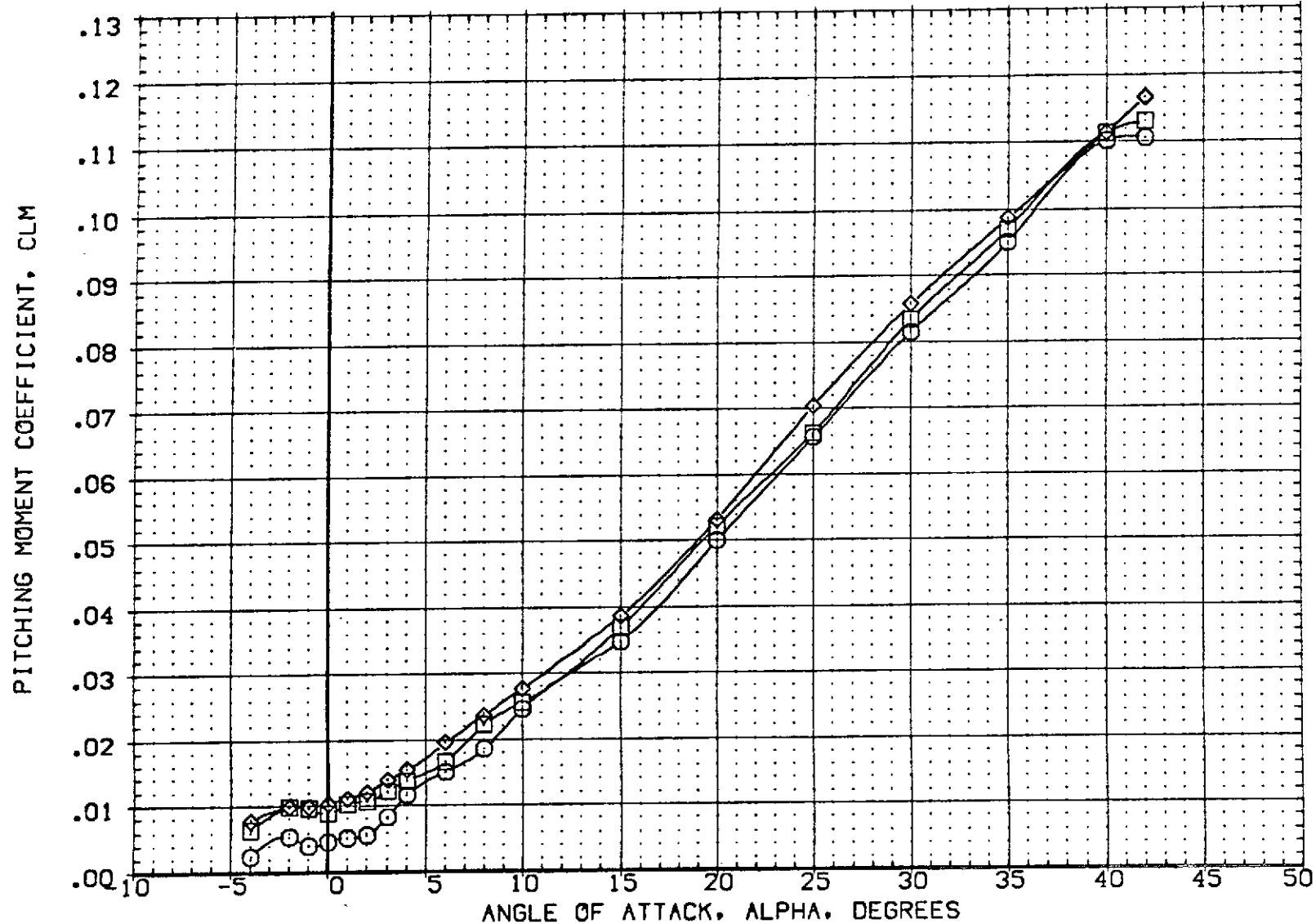


FIG 7 REYNOLDS NUMBER EFFECT (ELEVON DEFL = -40 DEGS)

(C)MACH = 4.60

APPENDIX  
TABULATED SOURCE DATA

Tabulations of plotted data are available on request from  
Data Management Services.

OA20C LRC UFWT 1057 -140A/B ORBITER

(AQ2010) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = 16.300  
 R/L = 2.500

RUN NO. 33/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
2.500	-4.731	.01723	-.15415	-.18164	543.63786	-.16870	.13279	.00159	-.00081	.00048
2.500	-3.347	.01906	-.15767	-.18340	543.61225	-.12450	.13200	-.00143	-.00069	.00041
2.500	-1.562	.02042	-.15765	-.18864	543.48422	-.06937	.13041	-.00639	-.00056	.00023
2.500	-.498	.01955	-.15765	-.18689	543.48422	-.03445	.12874	-.00892	-.00065	.00021
2.500	.467	.02031	-.15589	-.18689	543.48422	-.00503	.12771	-.01182	-.00050	.00023
2.500	1.589	.02137	-.15765	-.18689	543.48422	.02990	.12659	-.01502	-.00045	.00015
2.500	2.615	.02084	-.15942	-.19040	543.50983	.06094	.12535	-.01738	-.00037	.00003
2.500	3.641	.02080	-.15943	-.19041	543.58665	.09195	.12444	-.02037	-.00022	.00003
2.500	5.717	.02132	-.16119	-.18339	543.58665	.15956	.12046	-.02477	-.00026	-.00016
2.500	7.890	.02151	-.16119	-.18339	543.58665	.23275	.11695	-.02878	-.00021	-.00026
2.500	9.961	.02137	-.16471	-.17813	543.58665	.30027	.11418	-.03184	-.00023	-.00027
2.500	15.179	.02136	-.17000	-.18515	543.58665	.48406	.10843	-.04589	-.00007	-.00037
2.500	20.476	.02279	-.17880	-.18515	543.58665	.68573	.10366	-.06371	.00024	-.00065
2.500	25.801	.02422	-.18232	-.18514	543.48422	.90432	.09530	-.08392	.00064	-.00146
2.500	31.090	.02589	-.16646	-.17287	543.48422	1.12565	.08546	-.10240	.00062	-.00184
2.500	36.439	.02487	-.17175	-.17988	543.48422	1.36630	.08060	-.12445	-.00050	-.00020
2.500	41.776	.02525	-.17175	-.18163	543.48422	1.61098	.07436	-.15065	.00031	-.00143
2.500	47.075	.02282	-.17354	-.17991	543.79150	1.81700	.06836	-.15715	.00008	-.00085
	GRADIENT	.00039	-.00045	-.00095	-.01060	.03117	-.00105	-.00265	.00006	-.00005

RUN NO. 31/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
3.900	-4.378	.01592	-.07544	-.08183	376.06027	-.13284	.10434	-.02160	.00009	.00050
3.900	-3.033	.01699	-.07544	-.07676	376.05225	-.10599	.10209	-.02013	.00006	.00038
3.900	-1.257	.01662	-.07544	-.08183	376.05225	-.07116	.09860	-.01903	.00005	.00052
3.900	-.237	.01690	-.07544	-.08436	376.00413	-.04705	.09607	-.01842	.00004	.00038
3.900	.758	.01766	-.07543	-.08182	375.83573	-.02561	.09473	-.01761	.00002	.00040
3.900	1.784	.01764	-.07543	-.08436	375.83573	-.00418	.09372	-.01774	.00013	.00040
3.900	2.797	.01760	-.07543	-.08182	375.83573	.01685	.09269	-.01785	.00001	.00040
3.900	3.817	.01788	-.07543	-.08436	375.83573	.04329	.09112	-.01736	-.00001	.00026
3.900	5.857	.01781	-.07543	-.08182	375.83573	.09078	.08795	-.01699	-.00003	.00025
3.900	7.937	.01773	-.07543	-.08182	375.83573	.14611	.08611	-.01892	-.00005	.00025
3.900	9.995	.01798	-.07539	-.08180	375.02577	.20446	.08510	-.02108	.00004	.00011
3.900	15.135	.01888	-.07799	-.08183	376.00413	.36351	.08210	-.03049	.00008	-.00001
3.900	20.334	.01930	-.07798	-.08182	375.87582	.54679	.07967	-.04331	.00024	-.00030
3.900	25.536	.02046	-.07798	-.07676	375.93998	.74861	.07893	-.05702	.00026	-.00058
3.900	30.780	.02096	-.07798	-.07676	375.93998	.97336	.07784	-.07500	.00027	-.00057
3.900	36.004	.02160	-.07798	-.07675	375.88384	1.20808	.07866	-.09322	.00028	-.00099
3.900	41.248	.02192	-.07798	-.07675	375.88384	1.45567	.07619	-.11607	.00029	-.00127
3.900	46.484	.02321	-.07544	-.07676	375.92394	1.69174	.06994	-.14786	.00015	-.00122
	GRADIENT	.00021	.00000	-.00051	-.03522	.02136	-.00163	.00049	-.00001	-.00002

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2010) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690,0000 SQ.FT. XMRP = 1076,4800 IN.  
 LREF = 476,8117 IN. YMRP = ,0000 IN.  
 BREF = 936,6816 IN. ZMRP = 375,0000 IN.  
 SCALE = 1,0000 SCALE

## PARAMETRIC DATA

BETA = ,000 ELEVTR = ,000  
 AILRON = ,000 RUDDER = ,000  
 SPOBRK = 54,920 BDFLAP = 16,300  
 R/L = 2,500

RUN NO. 32/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5,00/ 5,00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.054	.01729	-.05691	-.05530	294,28615	-.13183	.10217	-.02271	-.00008	.00031
4.600	-2.722	.01694	-.05689	-.05528	293,85692	-.10458	.09882	-.02167	-.00008	.00048
4.600	-.974	.01801	-.05366	-.05853	294,28615	-.06679	.09368	-.02115	-.00012	.00033
4.600	.025	.01799	-.05366	-.06177	294,28615	-.04968	.09189	-.02075	-.00012	.00033
4.600	1.038	.01797	-.05366	-.05853	294,28615	-.02903	.09006	-.01935	.00002	.00033
4.600	2.077	.01793	-.05691	-.05530	294,28615	-.00516	.08805	-.01931	-.00014	.00033
4.600	3.093	.01792	-.05691	-.05853	294,28615	.01498	.08607	-.01913	.00001	.00033
4.600	4.112	.01820	-.05691	-.05853	294,28615	.03842	.08475	-.01911	-.00016	.00015
4.600	6.126	.01894	-.05691	-.05853	294,28615	.08553	.08088	-.01790	-.00004	.00018
4.600	8.191	.01921	-.05691	-.05853	294,28615	.13579	.07802	-.01928	-.00006	.00000
4.600	10.238	.01915	-.05691	-.05853	294,28615	.19275	.07594	-.02101	-.00009	-.00001
4.600	15.349	.02042	-.05691	-.05853	294,28615	.34906	.07540	-.03039	-.00002	-.00034
4.600	20.501	.02056	-.05691	-.05853	294,28615	.52894	.07409	-.03995	.00005	-.00052
4.600	25.655	.02101	-.05691	-.05530	294,28615	.72244	.07562	-.05261	.00027	-.00090
4.600	30.836	.02155	-.05691	-.05530	294,28615	.93858	.07530	-.06907	.00002	-.00089
4.600	36.016	.02165	-.05691	-.05530	294,28615	1.16671	.07653	-.09074	.00021	-.00107
4.600	41.188	.02142	-.05366	-.05530	294,28615	1.40159	.07511	-.11404	.00041	-.00107
4.600	46.387	.02155	-.05366	-.05530	294,28615	1.62829	.06648	-.15420	.00044	-.00124
	GRADIENT	.00012	-.00005	-.00031	.02343	.02069	-.00214	.00047	-.00000	-.00002

OA20C LRC UPWT 1957 -140A/B ORBITER

(AQ2011) ( 10 APR 74 )

## REFERENCE DATA

SPEC = 2690.0000 SQ.FT.    XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN.        YMRP = .0000 IN.  
 BREF = 936.6816 IN.        ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000    ELEVTR = 15.000  
 AILRON = .000    RUDDER = .000  
 SPDBRK = 54.920    DOFLAP = 16.300  
 R/L = 2.500

RUN NO. 34/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
2.500	-4.724	.01701	-.15972	-.18368	543.61225	-.12468	.13927	-.02967	-.00028	.00057
2.500	-3.303	.01724	-.16154	-.18546	544.04755	-.07864	.13901	-.03273	-.00030	.00047
2.500	-1.533	.01906	-.16327	-.19070	543.81710	-.02361	.13857	-.03830	-.00026	.00041
2.500	-.503	.02010	-.16144	-.19242	543.30498	.00939	.13823	-.04140	-.00045	.00033
2.500	.503	.01894	-.16151	-.19245	543.81710	.04055	.13786	-.04497	-.00037	.00041
2.500	1.601	.02031	-.16149	-.19244	543.66347	.07547	.13741	-.04750	-.00048	.00023
2.500	2.626	.02028	-.16146	-.19418	543.45862	.10650	.13656	-.05118	-.00025	.00023
2.500	3.680	.02054	-.16332	-.19423	544.22679	.14091	.13574	-.05495	-.00027	.00013
2.500	5.760	.02074	-.16331	-.19073	544.20119	.21205	.13390	-.06078	-.00022	.00003
2.500	7.844	.02205	-.16510	-.19074	544.40604	.27944	.13205	-.06573	-.00026	-.00015
2.500	9.952	.02114	-.16505	-.18371	543.97074	.35249	.12993	-.07177	-.00012	-.00017
2.500	15.213	.02225	-.17034	-.18547	544.07316	.54651	.12856	-.09350	.00003	-.00035
2.500	20.516	.02226	-.17907	-.19242	543.30498	.76130	.12883	-.12054	.00042	-.00046
2.500	25.842	.02515	-.17730	-.19067	543.30498	.99012	.12567	-.15107	.00080	-.00144
2.500	31.137	.02640	-.16849	-.17488	543.30498	1.22560	.12253	-.17941	.00110	-.00194
2.500	36.470	.02585	-.17732	-.18542	543.45862	1.48164	.12327	-.21329	-.00011	-.00018
	GRADIENT	.00044	-.00021	-.00128	.01128	.03149	-.00041	-.00303	-.00000	-.00005

RUN NO. 35/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
3.900	-4.363	.01673	-.07840	-.08223	375.98007	-.11237	.10648	-.03411	.00017	.00052
3.900	-3.028	.01670	-.07840	-.08223	375.98007	-.08826	.10425	-.03342	.00017	.00052
3.900	-1.270	.01743	-.07840	-.08730	375.98007	-.04816	.10131	-.03357	.00014	.00054
3.900	-.260	.01740	-.07840	-.08477	375.98007	-.02411	.09984	-.03386	.00013	.00054
3.900	.759	.01816	-.07840	-.08730	375.98007	-.00010	.09934	-.03507	.00023	.00056
3.900	1.784	.01814	-.07840	-.08477	375.98007	.02132	.09833	-.03519	.00034	.00056
3.900	2.834	.01810	-.07840	-.08730	375.98007	.04758	.09763	-.03654	.00021	.00056
3.900	3.841	.01807	-.07840	-.08730	375.98007	.07122	.09659	-.03776	.00020	.00056
3.900	5.860	.01800	-.07840	-.08477	375.98007	.12640	.09495	-.04158	.00017	.00056
3.900	7.930	.01825	-.07840	-.08477	375.98007	.18156	.09469	-.04538	.00014	.00041
3.900	10.007	.01818	-.07840	-.08223	375.98007	.24454	.09437	-.05059	.00024	.00041
3.900	15.182	.01942	-.07840	-.08223	375.98007	.41936	.09641	-.07030	.00026	.00015
3.900	20.321	.02017	-.07840	-.08223	375.98007	.61239	.09914	-.09399	.00040	-.00028
3.900	25.570	.02136	-.07586	-.07463	375.98007	.83204	.10421	-.11998	.00064	-.00055
3.900	30.780	.02187	-.07586	-.07716	375.98007	1.06664	.10982	-.14875	.00053	-.00054
3.900	36.019	.02174	-.07840	-.07716	375.98007	1.31631	.11663	-.17812	.00065	-.00099
3.900	41.242	.02220	-.07840	-.07716	375.98007	1.57383	.12089	-.20981	.00053	-.00096
3.900	46.512	.02274	-.07840	-.07463	376.00413	1.84542	.12076	-.26628	.00061	-.00094
	GRADIENT	.00020	-.00000	-.00061	.00000	.02262	-.00117	-.00046	.00001	.00001

OA20C LRC UPWT 1057 -140A/B ORBITER

(A02011) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000  
 AILRON = .000 RUDDER = .000  
 SPOBRK = 54.920 BDFLAP = 16.300  
 R/L = 2.500

RUN NO. 36/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.045	.01666	-.05746	-.06230	294.75155	-.11184	.10227	-.03223	.00007	.00066
4.600	-2.693	.01742	-.05746	-.06230	294.75155	-.08446	.09867	-.03118	.00004	.00069
4.600	-.953	.01738	-.05421	-.06230	294.75155	-.04703	.09499	-.03306	.00018	.00069
4.600	.048	.01769	-.05746	-.05907	294.75155	-.02664	.09316	-.03409	.00016	.00051
4.600	1.063	.01846	-.05746	-.06230	294.75155	-.00271	.09193	-.03407	.00029	.00054
4.600	2.067	.01844	-.05746	-.06230	294.75155	.01768	.09075	-.03505	.00028	.00054
4.600	3.125	.01841	-.05746	-.06230	294.75155	.04104	.08919	-.03623	.00027	.00053
4.600	4.127	.01871	-.05746	-.06230	294.75155	.06440	.08791	-.03744	.00026	.00036
4.600	6.140	.01866	-.05746	-.06230	294.75155	.11451	.08529	-.04000	.00024	.00035
4.600	8.210	.01893	-.05746	-.06230	294.75155	.17143	.08369	-.04293	.00036	.00017
4.600	10.265	.01888	-.05746	-.06230	294.75155	.23139	.08414	-.04840	.00033	.00017
4.600	15.381	.01984	-.05746	-.05907	294.75155	.40031	.08729	-.06806	.00039	.00002
4.600	20.484	.02032	-.05746	-.05907	294.75155	.59270	.09122	-.09035	.00060	-.00035
4.600	25.680	.02045	-.05746	-.05907	294.75155	.79852	.09759	-.11445	.00066	-.00055
4.600	30.854	.02134	-.05746	-.05907	294.75155	1.03050	.10438	-.14254	.00054	-.00071
4.600	36.010	.02145	-.05746	-.05907	294.75155	1.26778	.11284	-.17418	.00072	-.00089
4.600	41.232	.02233	-.05421	-.05907	294.75155	1.51508	.11637	-.20657	.00089	-.00104
4.600	46.381	.02251	-.05421	-.05583	294.75155	1.75703	.11544	-.26794	.00105	-.00121
	GRADIENT	.00024	-.00008	-.00002	.00000	.02155	-.00170	-.00069	.00003	-.00003

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2012) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 DREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPCBRK = 54.920 BDPLAP = -11.700  
 R/L = 2.500

RUN NO. 37/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
2.500	-4.800	.01760	-.13370	-.15422	543.91952	-.29743	.17769	.08331	-.00085	.00059
2.500	-3.428	.01865	-.13551	-.15601	544.17558	-.24959	.17233	.07792	-.00064	.00050
2.500	-1.633	.01920	-.14080	-.16477	544.25240	-.18712	.16691	.07243	-.00043	.00031
2.500	-.593	.01992	-.14605	-.17351	544.09877	-.14888	.16302	.06637	-.00062	.00033
2.500	.422	.01990	-.14959	-.17528	544.25240	-.11584	.15915	.06184	-.00031	.00032
2.500	1.485	.02095	-.15305	-.18224	543.81710	-.08123	.15568	.05666	-.00042	.00024
2.500	2.618	.02153	-.15477	-.18397	543.56104	-.04120	.14971	.05170	-.00044	.00005
2.500	3.597	.02228	-.15657	-.18224	543.79150	-.01004	.14598	.04989	-.00022	.00006
2.500	5.665	.02137	-.16014	-.17702	544.20119	.05753	.14003	.04542	-.00007	.00004
2.500	7.778	.02126	-.16009	-.17874	543.84271	.12190	.13541	.04584	.00023	.00004
2.500	9.884	.02217	-.16194	-.18231	544.58528	.19296	.13132	.04579	-.00022	-.00004
2.500	15.125	.02262	-.16520	-.18212	542.35757	.37646	.11797	.03636	.00003	-.00004
2.500	20.436	.02257	-.17073	-.18405	544.53406	.56789	.10525	.02988	.00028	-.00014
2.500	25.749	.02509	-.17426	-.18932	544.68770	.77024	.09244	.02491	.00068	-.00103
2.500	31.013	.02738	-.17946	-.18750	543.84271	.97375	.08306	.02463	.00084	-.00161
2.500	36.366	.02532	-.17777	-.18581	544.58528	1.18988	.07182	.02143	-.00065	-.00019
	GRADIENT	.00052	-.00298	-.00396	-.04703	.03429	-.00373	-.00418	.00006	-.00006

RUN NO. 38/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
3.900	-4.413	.01717	-.07127	-.07507	376.06829	-.20961	.13308	.02357	.00038	.00068
3.900	-3.071	.01823	-.07127	-.08014	376.18056	-.17749	.12862	.02374	.00023	.00056
3.900	-1.312	.01817	-.07127	-.07761	376.17254	-.13735	.12359	.02447	.00022	.00056
3.900	-.280	.01815	-.07128	-.07508	376.28481	-.11332	.11930	.02313	.00033	.00056
3.900	.734	.01810	-.07383	-.07508	376.30887	-.08674	.11616	.02172	.00019	.00056
3.900	1.763	.01807	-.07383	-.07508	376.31689	-.06265	.11357	.02235	.00018	.00056
3.900	2.803	.01882	-.07383	-.07509	376.38906	-.03894	.11080	.02202	.00016	.00058
3.900	3.795	.01880	-.07383	-.07762	376.39708	-.01522	.10878	.02171	.00027	.00058
3.900	5.848	.01872	-.07383	-.08015	376.31689	.03752	.10343	.02172	.00025	.00058
3.900	7.892	.01896	-.07637	-.07762	376.34095	.08767	.10078	.02288	.00023	.00043
3.900	9.960	.01919	-.07637	-.08015	376.28481	.14566	.09749	.02262	.00021	.00029
3.900	15.131	.02007	-.07891	-.08268	376.26075	.29791	.09015	.02389	.00025	.00017
3.900	20.320	.02125	-.07892	-.08015	376.35658	.46829	.08170	.02304	.00029	-.00009
3.900	25.519	.02128	-.07889	-.08266	375.70742	.65113	.07739	.02753	.00047	-.00026
3.900	30.748	.02206	-.07891	-.08267	376.10036	.85252	.07252	.02877	.00039	-.00039
3.900	35.958	.02315	-.07638	-.07762	376.45322	1.06354	.06798	.03165	.00041	-.00065
3.900	41.185	.02309	-.07380	-.07506	375.81969	1.28527	.06195	.03226	.00021	-.00079
3.900	46.454	.02278	-.06868	-.06997	375.52297	1.49785	.05137	.02552	.00036	-.00079
	GRADIENT	.00015	-.00041	.00016	.03914	.02372	-.00302	-.00029	-.00001	-.00001

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2012) ( 10 APR 74 )

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 SREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPOBRK = 54.920 BDCLAP = -11.700  
 R/L = 2.500

RUN NO. 40/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.073	.01822	-.05154	-.05311	293.67185	-.20421	.13175	.02002	.00012	.00072
4.600	-2.717	.01817	-.05154	-.05311	293.67185	-.17338	.12609	.02083	-.00004	.00072
4.600	-.975	.01846	-.05154	-.05311	293.67185	-.13241	.11694	.01855	.00009	.00054
4.600	.016	.01812	-.05154	-.05311	293.67185	-.10518	.11371	.01592	.00023	.00072
4.600	1.036	.01842	-.05154	-.05311	293.67185	-.08462	.10977	.01604	.00022	.00054
4.600	2.058	.01807	-.05154	-.05311	293.67185	-.06075	.10643	.01483	.00021	.00071
4.600	3.069	.01836	-.05154	-.05311	293.67185	-.03723	.10380	.01480	.00005	.00054
4.600	4.080	.01913	-.05480	-.05311	293.67185	-.01369	.10046	.01477	.00002	.00056
4.600	6.117	.01908	-.05482	-.05313	294.10108	.03336	.09290	.01464	.00016	.00056
4.600	8.168	.01966	-.05480	-.05635	293.67185	.08405	.08901	.01686	.00013	.00020
4.600	10.220	.01960	-.05480	-.05635	293.67185	.13786	.08556	.01648	.00026	.00020
4.600	15.357	.02053	-.05480	-.05960	293.67185	.28843	.07915	.01825	.00019	.00005
4.600	20.488	.02064	-.05806	-.05635	293.67185	.45267	.07363	.02284	.00028	-.00014
4.600	25.663	.02185	-.05806	-.05960	293.67185	.63056	.07077	.02556	.00036	-.00049
4.600	30.784	.02159	-.05806	-.05635	293.67185	.82150	.06790	.02996	.00014	-.00051
4.600	35.999	.02244	-.05482	-.05637	294.10108	1.02960	.06539	.02987	.00035	-.00066
4.600	41.153	.02283	-.05480	-.05311	293.67185	1.23737	.05928	.02874	.00041	-.00102
4.600	46.298	.02264	-.04831	-.04989	294.10108	1.43335	.04652	.00832	.00062	-.00102
	GRADIENT	.00006	-.00022	-.00000	.00000	.02342	-.00385	-.00082	.00000	-.00002



OA20C LRC UPWT 1037 -140A/B ORBITER

(A02013) ( 10 APR 74 )

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPOBRK = 54.920 BDCLAP = -11.700  
 R/L = 5.000

RUN NO. 39/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.219	.01651	-.05140	-.05546	588.12435	-.20720	.13373	.02144	.00013	.00090
4.600	-2.860	.01708	-.05140	-.05708	588.12435	-.17641	.12846	.02149	.00019	.00072
4.600	-1.078	.01763	-.05140	-.05546	588.12435	-.13389	.11962	.01899	.00009	.00054
4.600	-.069	.01758	-.05141	-.05709	588.55358	-.10826	.11546	.01752	.00015	.00054
4.600	.979	.01785	-.05141	-.05547	588.55358	-.08440	.11133	.01676	.00014	.00045
4.600	2.007	.01827	-.05141	-.05547	588.55358	-.05881	.10824	.01596	.00020	.00055
4.600	3.086	.01821	-.05304	-.05547	588.55358	-.03507	.10504	.01645	.00019	.00055
4.600	4.110	.01815	-.05304	-.05547	588.55358	-.00968	.10127	.01622	.00018	.00055
4.600	6.176	.01914	-.05466	-.05547	588.55358	.04118	.09609	.01703	.00015	.00047
4.600	8.259	.01934	-.05466	-.05871	588.55358	.09206	.09222	.01788	.00021	.00038
4.600	10.359	.02065	-.05629	-.05871	588.55358	.14794	.08866	.01841	.00026	.00021
4.600	15.592	.02094	-.05792	-.05871	588.55358	.29482	.08068	.02001	.00027	.00003
4.600	20.884	.02273	-.05792	-.05871	588.55358	.46382	.07444	.02460	.00020	-.00013
4.600	26.224	.02321	-.05792	-.05871	588.55358	.65184	.07155	.03010	.00029	-.00041
4.600	31.526	.02460	-.05792	-.05871	588.55358	.85419	.06804	.03165	.00020	-.00049
4.600	36.911	.02541	-.05466	-.05547	588.55358	1.06623	.06470	.03098	.00050	-.00085
4.600	42.268	.02602	-.05141	-.05223	588.55358	1.28174	.05880	.03010	.00064	-.00093
	GRADIENT	.00020	-.00019	.00009	.06571	.02378	-.00392	-.00074	.00001	-.00004

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2014) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = -11.700  
 R/L = 1.250

RUN NO. 41/ 0 RN/L = 1.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-3.983	.01875	-.05476	-.05789	142.62426	-.20361	.13120	.01644	-.00019	.00074
4.600	-2.662	.01906	-.04806	-.05790	142.69660	-.17522	.12546	.01764	-.00021	.00037
4.600	-.921	.01936	-.05477	-.05790	142.71469	-.13325	.11513	.01308	-.00024	.00001
4.600	.038	.01935	-.05477	-.05790	142.68304	-.10518	.11184	.01179	-.00025	.00001
4.600	1.080	.01902	-.05477	-.05122	142.69660	-.08410	.10767	.01095	-.00026	.00037
4.600	2.076	.01933	-.05477	-.05790	142.72373	-.06292	.10536	.01000	.00004	.00000
4.600	3.109	.01931	-.05477	-.05790	142.67851	-.04263	.10123	.01161	-.00028	.00000
4.600	4.096	.01930	-.05476	-.05789	142.66043	-.01514	.09890	.01280	.00003	.00000
4.600	6.090	.01928	-.05477	-.05790	142.74634	.03244	.09114	.01305	.00001	.00000
4.600	8.144	.01925	-.05477	-.05790	142.70564	.07998	.08699	.01344	-.00001	.00000
4.600	10.139	.02002	-.05477	-.05122	142.74181	.13481	.08346	.01590	.00025	.00005
4.600	15.246	.01993	-.05477	-.05790	142.74634	.26837	.07645	.01702	.00020	.00005
4.600	20.278	.02015	-.05477	-.05122	142.73277	.43746	.07034	.02108	.00045	-.00033
4.600	25.349	.02035	-.05477	-.05122	142.74181	.62043	.06857	.02455	.00039	-.00074
4.600	30.435	.02023	-.05477	-.05122	142.74181	.81668	.06557	.02714	.00065	-.00077
4.600	35.560	.02087	-.05477	-.05790	142.71469	1.01597	.06461	.02774	.00022	-.00070
4.600	40.631	.02106	-.05477	-.05122	142.66947	1.22303	.05851	.02772	.00044	-.00106
4.600	45.737	.02239	-.05477	-.05790	142.75086	1.42007	.04449	.00523	.00061	-.00172
	GRADIENT	.00005	-.00037	.00009	.00286	.02323	-.00404	-.00073	.00002	-.00007

OA20C LRC UPWT 1057 -140A/B ORBITER

(A02015) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BOFLAP = -11.700  
 R/L = 2.500

RUN NO. 42/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
2.500	-4.743	.01723	-.15103	-.18023	544.02195	-.18038	.13098	.01466	-.00030	.00047
2.500	-3.360	.01745	-.15281	-.18024	544.17558	-.13630	.12981	.01167	-.00057	.00038
2.500	-1.534	.02004	-.15446	-.18192	543.35620	-.07935	.12795	.00861	-.00054	.00033
2.500	-.542	.01921	-.15622	-.18192	543.33059	-.04805	.12649	.00626	-.00038	.00031
2.500	.537	.02026	-.15621	-.18191	543.25377	-.01493	.12517	.00381	-.00040	.00023
2.500	1.600	.02022	-.15803	-.18546	543.76589	.01638	.12412	.00148	-.00025	.00023
2.500	2.659	.02048	-.15972	-.18717	543.20256	.04743	.12292	-.00087	-.00027	.00013
2.500	3.633	.01997	-.16143	-.18714	542.79287	.07495	.12123	-.00240	-.00011	.00001
2.500	5.708	.02094	-.16153	-.18019	543.53544	.13894	.11718	-.00393	-.00031	-.00007
2.500	7.853	.02113	-.15976	-.17667	543.48422	.20872	.11274	-.00516	-.00009	-.00017
2.500	9.942	.02177	-.16160	-.16973	544.09877	.27602	.10873	-.00693	-.00021	-.00015
2.500	15.217	.02176	-.17039	-.17673	544.02195	.45451	.10187	-.01611	.00004	-.00026
2.500	20.489	.02347	-.17915	-.18370	543.66347	.65145	.09451	-.02650	.00020	-.00064
2.500	25.809	.02457	-.17919	-.18023	544.04755	.85692	.08338	-.03813	.00052	-.00135
2.500	31.085	.02624	-.16326	-.16964	543.33059	1.07084	.07127	-.04902	.00067	-.00173
2.500	36.455	.02599	-.16861	-.17496	543.86831	1.30161	.06316	-.06272	-.00053	-.00007
	GRADIENT	.00038	-.00118	-.00092	-.12713	.03055	-.00116	-.00207	.00003	-.00005

RUN NO. 43/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
3.900	-4.373	.01671	-.07339	-.07466	376.02819	-.14040	.10243	-.01552	.00008	.00052
3.900	-3.013	.01666	-.07339	-.07466	375.97205	-.11350	.10016	-.01308	.00007	.00052
3.900	-1.287	.01740	-.07339	-.07466	376.02017	-.07864	.09633	-.01202	.00005	.00054
3.900	-.272	.01736	-.07339	-.07466	376.01215	-.05720	.09434	-.01122	.00004	.00054
3.900	.754	.01734	-.07339	-.07466	375.98007	-.03579	.09228	-.01139	.00015	.00054
3.900	1.790	.01730	-.07339	-.07466	375.96404	-.01427	.09077	-.00962	.00015	.00054
3.900	2.796	.01759	-.07339	-.07466	375.93998	.00687	.08928	-.00883	.00014	.00040
3.900	3.821	.01834	-.07339	-.07466	376.02819	.03064	.08819	-.00816	.00012	.00042
3.900	5.862	.01827	-.07339	-.07466	375.98007	.07819	.08453	-.00686	.00010	.00042
3.900	7.925	.01819	-.07339	-.07466	375.93998	.13099	.08232	-.00675	.00008	.00041
3.900	9.979	.01844	-.07593	-.07466	375.91592	.18373	.08016	-.00670	.00017	.00027
3.900	15.150	.01932	-.07594	-.07466	376.01215	.33837	.07587	-.00926	.00010	.00015
3.900	20.317	.02005	-.07848	-.07466	376.01215	.51142	.07114	-.01397	.00026	-.00028
3.900	25.573	.02087	-.07593	-.07212	375.93998	.70340	.06840	-.01766	.00030	-.00042
3.900	30.758	.02169	-.07593	-.07212	375.90790	.91572	.06407	-.02648	.00044	-.00055
3.900	36.016	.02199	-.07594	-.07213	376.09235	1.14218	.06176	-.03672	.00034	-.00083
3.900	41.237	.02242	-.07593	-.07212	375.92394	1.38032	.05698	-.04949	.00011	-.00081
3.900	46.480	.02277	-.07085	-.06960	376.10036	1.61388	.04824	-.07176	.00024	-.00109
	GRADIENT	.00016	.00000	.00000	-.00368	.02080	-.00180	.00083	.00001	-.00001

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2015) ( 10 APR 74 )

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = -11.700  
 R/L = 2.500

RUN NO. 44/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q(PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.047	.01776	-.05426	-.05258	293.63567	-.13521	.09977	-.01900	.00007	.00051
4.600	-2.709	.01740	-.05426	-.05258	293.63567	-.11110	.09562	-.01652	-.00009	.00069
4.600	-.953	.01768	-.05426	-.05258	293.63567	-.07335	.09056	-.01605	.00005	.00051
4.600	.024	.01766	-.05426	-.05258	293.63567	-.05620	.08821	-.01567	.00004	.00051
4.600	1.037	.01764	-.05426	-.05258	293.63567	-.03555	.08638	-.01424	.00003	.00051
4.600	2.066	.01761	-.05426	-.05258	293.63567	-.01491	.08447	-.01282	.00003	.00051
4.600	3.106	.01838	-.05426	-.05258	293.63567	.00525	.08303	-.01260	.00000	.00054
4.600	4.092	.01867	-.05426	-.05258	293.63567	.02547	.08057	-.01124	-.00001	.00036
4.600	6.130	.01862	-.05426	-.05258	293.63567	.07267	.07657	-.01002	.00013	.00035
4.600	8.169	.01888	-.05426	-.05258	293.63567	.11991	.07329	-.00759	.00011	.00017
4.600	10.240	.01882	-.05426	-.05258	293.63567	.17366	.07112	-.00791	.00009	.00017
4.600	15.342	.01977	-.05752	-.05258	293.63567	.32066	.06818	-.00950	.00017	.00002
4.600	20.491	.01989	-.05426	-.05258	293.63567	.48794	.06447	-.00990	.00025	-.00017
4.600	25.688	.02111	-.05426	-.05258	293.63567	.67217	.06337	-.01359	.00032	-.00052
4.600	30.837	.02119	-.05426	-.04934	293.63567	.87939	.06078	-.01991	.00024	-.00072
4.600	35.983	.02125	-.05426	-.05258	293.63567	1.10178	.05966	-.03398	.00014	-.00090
4.600	41.178	.02213	-.05426	-.05258	293.63567	1.32754	.05431	-.04843	.00033	-.00105
4.600	46.360	.02115	-.05100	-.04609	293.63567	1.54475	.04309	-.08572	.00038	-.00107
	GRADIENT	.00011	-.00000	.00000	-.00000	.01980	-.00229	.00088	-.00000	-.00002

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2016) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = .000  
 R/L = 2.500

RUN NO. 45/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
2.500	-4.714	.01612	-.14849	-.18133	543.79150	-.18071	.13124	.01209	-.00046	.00056
2.500	-3.371	.01748	-.15196	-.18305	543.38180	-.13837	.12998	.01045	-.00032	.00038
2.500	-1.543	.01737	-.15556	-.18485	543.97074	-.08314	.12813	.00620	-.00043	.00037
2.500	-.527	.01844	-.15379	-.18485	543.89392	-.05007	.12732	.00310	-.00029	.00029
2.500	.416	.01839	-.15373	-.18481	543.48422	-.02061	.12539	.00149	-.00022	.00029
2.500	1.585	.02055	-.15381	-.18311	544.07316	.01426	.12437	-.00170	-.00034	.00013
2.500	2.616	.02004	-.15554	-.18484	543.81710	.04343	.12317	-.00462	-.00018	.00002
2.500	3.620	.01998	-.15742	-.18667	544.76452	.07441	.12183	-.00563	-.00019	.00001
2.500	5.701	.02098	-.15908	-.18310	543.94513	.13856	.11769	-.00852	-.00007	-.00007
2.500	7.866	.02114	-.15912	-.17788	544.30361	.20426	.11349	-.01014	-.00034	-.00017
2.500	9.916	.02024	-.15911	-.17261	544.17558	.27005	.10936	-.01251	-.00011	-.00019
2.500	15.151	.02148	-.16788	-.17960	543.97074	.44859	.10261	-.02233	.00004	-.00016
2.500	20.469	.02242	-.18019	-.18835	543.86831	.64508	.09612	-.03465	.00028	-.00056
2.500	25.839	.02462	-.18026	-.18491	544.63649	.85702	.08510	-.04863	.00060	-.00135
2.500	31.039	.02551	-.16617	-.17438	544.38043	1.07339	.07306	-.06228	.00075	-.00175
2.500	36.491	.02524	-.16789	-.17611	544.07316	1.30909	.06522	-.07823	-.00062	-.00009
	GRADIENT	.00050	-.00079	-.00043	.08835	.03061	-.00114	-.00227	.00053	-.00006

RUN NO. 46/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
3.900	-4.401	.01671	-.07230	-.07881	375.69138	-.14060	.10472	-.01642	.00008	.00052
3.900	-3.049	.01667	-.07485	-.07881	375.69940	-.11373	.10191	-.01494	.00007	.00052
3.900	-1.260	.01773	-.07484	-.07881	375.57109	-.07888	.09787	-.01391	.00005	.00040
3.900	-.281	.01769	-.07485	-.07882	375.78761	-.05737	.09597	-.01310	.00004	.00040
3.900	.737	.01766	-.07231	-.07882	375.77157	-.03588	.09396	-.01231	.00015	.00040
3.900	1.779	.01763	-.07232	-.07883	376.09235	-.01440	.09284	-.01147	.00014	.00040
3.900	2.786	.01760	-.07233	-.08137	376.18056	.00672	.09185	-.01064	.00013	.00040
3.900	3.819	.01835	-.07487	-.08136	376.10838	.03049	.08971	-.01000	.00011	.00042
3.900	5.879	.01828	-.07488	-.08137	376.21264	.08058	.08642	-.00978	.00010	.00042
3.900	7.988	.01820	-.07487	-.08137	376.15650	.13345	.08405	-.00874	.00019	.00041
3.900	9.979	.01877	-.07487	-.07883	376.04423	.18611	.08215	-.00965	.00017	.00013
3.900	15.148	.01934	-.07741	-.07883	376.07631	.34072	.07784	-.01315	.00021	.00015
3.900	20.296	.02007	-.07741	-.07883	376.06829	.51631	.07313	-.01990	.00037	-.00028
3.900	25.551	.02090	-.07741	-.07629	376.00413	.71077	.06981	-.02566	.00041	-.00042
3.900	30.747	.02171	-.07742	-.07630	376.14046	.92511	.06640	-.03646	.00043	-.00055
3.900	36.030	.02201	-.07741	-.07629	376.00413	1.15747	.06399	-.04988	.00033	-.00083
3.900	41.191	.02277	-.07487	-.07376	376.06027	1.39477	.05932	-.06547	.00009	-.00094
3.900	46.501	.02345	-.07232	-.07629	376.06829	1.63118	.04978	-.09179	.00021	-.00136
	GRADIENT	.00017	.00003	-.00030	.06749	.02076	-.00180	.00077	.00001	-.00001

OA20C LRC UPWT 1057 -140A/B ORBITER

(AQ2016) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BCFLAP = .000  
 R/L = 2.500

RUN NO. 47/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q(PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.058	.01666	-.05292	-.05470	294.33558	-.13848	.10155	-.02110	.00009	.00066
4.600	-2.732	.01741	-.05292	-.05470	294.33558	-.11097	.09745	-.01886	.00006	.00069
4.600	-.980	.01769	-.05292	-.05470	294.33558	-.07676	.09245	-.01818	.00005	.00051
4.600	.015	.01767	-.05292	-.05470	294.33558	-.05625	.09000	-.01799	.00004	.00051
4.600	1.051	.01764	-.05292	-.05470	294.33558	-.03556	.08809	-.01536	.00003	.00051
4.600	2.041	.01842	-.05292	-.05470	294.33558	-.01499	.08633	-.01517	.00016	.00054
4.600	3.097	.01838	-.05292	-.05470	294.33558	.00515	.08419	-.01374	.00000	.00054
4.600	4.073	.01837	-.05292	-.05470	294.33558	.02528	.08241	-.01356	.00015	.00053
4.600	6.103	.01863	-.05618	-.05470	294.33558	.07242	.07852	-.01115	.00013	.00035
4.600	8.176	.01889	-.05618	-.05794	294.33558	.11944	.07503	-.00993	.00011	.00017
4.600	10.248	.01883	-.05618	-.05470	294.33558	.17306	.07287	-.01026	.00009	.00017
4.600	15.323	.01977	-.05618	-.05470	294.33558	.32305	.07002	-.01324	.00016	.00002
4.600	20.461	.01990	-.05618	-.05470	294.33558	.49320	.06628	-.01625	.00024	-.00017
4.600	25.646	.02112	-.05618	-.05470	294.33558	.68032	.06519	-.02132	.00031	-.00052
4.600	30.746	.02121	-.05618	-.05470	294.33558	.88366	.06273	-.02983	.00023	-.00072
4.600	35.961	.02128	-.05618	-.05470	294.33558	1.11197	.06124	-.04673	.00027	-.00089
4.600	41.158	.02214	-.05292	-.05470	294.33558	1.34377	.05718	-.06389	.00030	-.00104
4.600	46.300	.02260	-.05292	-.05146	294.33558	1.56754	.04617	-.10031	.00049	-.00140
	GRADIENT	.00020	-.00000	.00000	.00000	.02010	-.00232	.00093	.00000	-.00002

OA20C LRC UPWT 1057 -140A/B ORBITER

(A02017) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BCFLAP = .000  
 R/L = 5.000

RUN NO. 48/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-4.206	.01449	-.05374	-.05789	589.64655	-.13819	.10076	-.02051	.00008	.00076
4.600	-2.840	.01474	-.05374	-.05627	589.64655	-.11252	.09725	-.01889	-.00001	.00067
4.600	-1.040	.01544	-.05373	-.05788	589.21732	-.07499	.09264	-.01793	-.00003	.00069
4.600	.003	.01540	-.05373	-.05788	589.21732	-.05442	.09027	-.01724	.00012	.00069
4.600	.968	.01567	-.05373	-.05788	589.21732	-.03559	.08811	-.01645	.00011	.00060
4.600	1.999	.01641	-.05373	-.05626	589.21732	-.01501	.08614	-.01513	.00009	.00061
4.600	3.102	.01667	-.05373	-.05788	589.21732	.00875	.08425	-.01400	.00008	.00052
4.600	4.172	.01661	-.05373	-.05788	589.21732	.03079	.08246	-.01277	.00008	.00052
4.600	6.191	.01761	-.05372	-.05787	588.78808	.07664	.07887	-.01104	.00013	.00044
4.600	8.301	.01860	-.05534	-.05787	588.78808	.12749	.07597	-.01016	.00010	.00037
4.600	10.354	.01880	-.05536	-.05627	589.64655	.18303	.07377	-.01016	.00015	.00027
4.600	15.629	.01989	-.05536	-.05627	589.64655	.32935	.06968	-.01207	.00016	.00010
4.600	20.889	.02125	-.05536	-.05465	589.64655	.50268	.06541	-.01439	.00016	-.00016
4.600	26.172	.02255	-.05536	-.05465	589.64655	.69977	.06410	-.02030	.00015	-.00042
4.600	31.476	.02364	-.05536	-.05465	589.64655	.91613	.06169	-.03165	-.00002	-.00041
4.600	36.902	.02403	-.05535	-.05303	589.21732	1.14955	.05972	-.04871	.00041	-.00087
4.600	42.299	.02356	-.05373	-.05303	589.21732	1.38718	.05482	-.06906	.00054	-.00088
	GRADIENT	.00028	.00000	-.00004	-.05593	.02019	-.00220	.00088	.00001	-.00003

OA20C LRC UFWT 1057 -140A/B ORBITER

(AQ2018) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = .000  
 R/L = 1.250

RUN NO. 49/ 0 RN/L = 1.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CAC	CAN	Q (PSF)	CN	CA	CLM	CBL	CYN
4.600	-3.958	.01829	-.05082	-.04774	142.51122	-.13616	.10035	-.02351	-.00024	.00032
4.600	-2.666	.01828	-.05082	-.04774	142.55191	-.11483	.09639	-.02180	-.00024	.00031
4.600	-.921	.01826	-.05083	-.04775	142.62426	-.07963	.09164	-.02322	-.00026	.00031
4.600	.037	.01825	-.05083	-.04776	142.64234	-.05826	.08843	-.02165	.00005	.00031
4.600	1.032	.01824	-.05083	-.04776	142.65139	-.03699	.08623	-.02001	.00004	.00031
4.600	2.076	.01855	-.05084	-.04776	142.65591	-.01572	.08493	-.01838	.00003	-.00006
4.600	3.109	.01821	-.05084	-.04776	142.65591	.00459	.08355	-.01662	-.00029	.00031
4.600	4.058	.01820	-.05083	-.04775	142.62426	.01800	.08309	-.01457	-.00029	.00031
4.600	6.146	.01818	-.05084	-.04776	142.66947	.06579	.07720	-.01175	.00001	.00030
4.600	8.139	.01815	-.05084	-.04776	142.68756	.11337	.07368	-.01136	-.00001	.00030
4.600	10.122	.01844	-.05083	-.04776	142.64686	.16101	.07029	-.01104	-.00004	-.00007
4.600	15.220	.01916	-.05755	-.04776	142.67399	.30860	.06739	-.01309	.00019	-.00001
4.600	20.271	.01937	-.05083	-.04775	142.61069	.47744	.06377	-.01394	.00012	-.00039
4.600	25.396	.01926	-.05083	-.04776	142.64234	.67361	.06388	-.02118	.00037	-.00043
4.600	30.439	.01947	-.05083	-.04776	142.64686	.88324	.06090	-.03192	.00060	-.00083
4.600	35.518	.02013	-.05084	-.04776	142.67851	1.09544	.06123	-.04702	.00015	-.00076
4.600	40.650	.02032	-.05084	-.04776	142.69208	1.32858	.05548	-.06365	.00035	-.00111
4.600	45.666	.02054	-.05083	-.04775	142.62426	1.54779	.04466	-.09962	.00053	-.00147
	GRADIENT	-.00000	-.00000	-.00000	.01587	.01989	-.00222	.00106	.00001	-.00001



DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(R02010) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 478.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SFDBRK = 54.920 BCFLAP = 16.300  
 R/L = 2.500

RUN NO. 33/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.731	.01723	-.16870	.13279	.00159	-.00081	.00048	.00035	-.15717	.14625	-1.07472
2.500	-3.347	.01906	-.12450	.13200	-.00143	-.00069	.00041	-.00068	-.11658	.13905	-.83845
2.500	-1.562	.02042	-.06937	.13041	-.00039	-.00056	.00023	-.00118	-.06579	.13225	-.49745
2.500	-.498	.01955	-.03445	.12874	-.00092	-.00065	.00021	-.00060	-.03333	.12904	-.25833
2.500	.467	.02031	-.00503	.12771	-.01182	-.00050	.00023	-.00111	-.00607	.12766	-.04755
2.500	1.589	.02137	.02990	.12659	-.01502	-.00045	.00015	-.00162	.02638	.12737	.20709
2.500	2.615	.02084	.06094	.12535	-.01738	-.00037	.00003	-.00105	.05516	.12800	.43090
2.500	3.641	.02080	.09195	.12444	-.02037	-.00022	.00003	-.00102	.08386	.13003	.64494
2.500	5.717	.02132	.15956	.12046	-.02477	-.00026	-.00016	-.00096	.14677	.13576	1.08108
2.500	7.890	.02151	.23275	.11695	-.02878	-.00021	-.00026	-.00087	.21450	.14779	1.45135
2.500	9.961	.02137	.30027	.11418	-.03184	-.00023	-.00027	-.00078	.27599	.16440	1.67876
2.500	15.179	.02136	.48406	.10843	-.04589	-.00007	-.00037	-.00057	.43878	.23139	1.89631
2.500	20.476	.02279	.68573	.10366	-.06371	.00024	-.00065	-.00086	.60615	.33699	1.79869
2.500	25.801	.02422	.90432	.09530	-.08392	.00064	-.00146	-.00012	.77269	.47940	1.61177
2.500	31.090	.02589	1.12565	.08546	-.10240	.00062	-.00184	-.00004	.91983	.65445	1.40550
2.500	36.439	.02487	1.36630	.08060	-.12445	-.00050	-.00020	-.00292	1.05131	.87638	1.19961
2.500	41.776	.02525	1.61098	.07436	-.15065	.00031	-.00143	-.00086	1.15184	1.12873	1.02048
2.500	47.075	.02282	1.81700	.06836	-.15715	.00008	-.00085	-.00067	1.18740	1.37704	.86228
GRADIENT		.00039	.03117	-.00105	-.00265	.00006	-.00005	-.00014	.02885	-.00198	.20873

RUN NO. 31/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
3.900	-4.378	.01592	-.13284	.10434	-.02160	.00009	.00050	.00211	-.12449	.11418	-1.09030
3.900	-3.033	.01699	-.10599	.10209	-.02013	.00006	.00038	.00136	-.10044	.10756	-.93380
3.900	-1.257	.01662	-.07116	.09860	-.01903	.00005	.00052	.00143	-.06898	.10014	-.68879
3.900	-.237	.01690	-.04705	.09607	-.01842	.00004	.00038	.00145	-.04666	.09627	-.48465
3.900	.758	.01766	-.02561	.09473	-.01761	.00002	.00040	.00071	-.02686	.09438	-.28455
3.900	1.784	.01764	-.00418	.09372	-.01774	.00013	.00040	.00073	-.00710	.09354	-.07589
3.900	2.797	.01760	.01685	.09269	-.01785	.00001	.00040	.00077	.01231	.09341	.13175
3.900	3.817	.01788	.04329	.09112	-.01736	-.00001	.00026	.00080	.03713	.09380	.39588
3.900	5.857	.01781	.09078	.08795	-.01699	-.00003	.00025	.00087	.08134	.09676	.84064
3.900	7.937	.01773	.14611	.08611	-.01892	-.00005	.00025	.00094	.13282	.10546	1.25939
3.900	9.995	.01798	.20446	.08510	-.02108	.00004	.00011	.00101	.18659	.11929	1.56409
3.900	15.135	.01888	.36351	.08210	-.03049	.00008	-.00001	.00041	.32947	.17416	1.89173
3.900	20.334	.01930	.54679	.07967	-.04331	.00024	-.00030	.00064	.48503	.26471	1.83229
3.900	25.536	.02046	.74861	.07893	-.05702	.00026	-.00058	.00050	.64145	.39393	1.62834
3.900	30.780	.02096	.97336	.07784	-.07500	.00027	-.00057	.00027	.79642	.56498	1.40964
3.900	36.004	.02160	1.20808	.07866	-.09322	.00028	-.00099	.00026	.93107	.77379	1.20325
3.900	41.248	.02192	1.45567	.07619	-.11607	.00029	-.00127	.00026	1.04422	1.01704	1.02672
3.900	46.484	.02321	1.69174	.06994	-.14786	.00015	-.00122	-.00131	1.11415	1.27497	.87386
GRADIENT		.00021	.02136	-.00163	.00049	-.00001	-.00002	-.00016	.01961	-.00253	.18185

OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2010) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = 16.300  
 R/L = 2.500

RUN NO. 32/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.054	.01729	-.13183	.10217	-.02271	-.00008	.00031	.00175	-.12428	.11123	-1.11728
4.600	-2.722	.01694	-.10458	.09882	-.02167	-.00008	.00048	.00181	-.09977	.10367	-.96232
4.600	-.974	.01801	-.06679	.09368	-.02115	-.00012	.00033	.00085	-.06519	.09480	-.68763
4.600	.025	.01799	-.04968	.09189	-.02075	-.00012	.00033	.00088	-.04972	.09187	-.54117
4.600	1.038	.01797	-.02903	.09006	-.01935	.00002	.00033	.00091	-.03066	.08952	-.34248
4.600	2.077	.01793	-.00516	.08805	-.01931	-.00014	.00033	.00095	-.00835	.08781	-.09507
4.600	3.093	.01792	.01498	.08607	-.01913	.00001	.00033	.00097	.01032	.08675	.11893
4.600	4.112	.01820	.03842	.08475	-.01911	-.00016	.00015	.00100	.03224	.08728	.36941
4.600	6.126	.01894	.08553	.08088	-.01790	-.00004	.00018	.00007	.07641	.08955	.85333
4.600	8.191	.01921	.13579	.07802	-.01928	-.00006	.00000	.00012	.12329	.09657	1.27664
4.600	10.236	.01915	.19275	.07594	-.02101	-.00009	-.00001	.00020	.17618	.10899	1.61655
4.600	15.349	.02042	.34906	.07540	-.03039	-.00002	-.00034	-.00064	.31665	.16511	1.91781
4.600	20.501	.02056	.52894	.07409	-.03995	.00005	-.00052	-.00039	.46949	.23465	1.84365
4.600	25.655	.02101	.72244	.07562	-.05261	.00027	-.00090	.00032	.61848	.38095	1.62350
4.600	30.836	.02155	.93858	.07530	-.06907	.00002	-.00089	.00000	.76730	.54576	1.40594
4.600	36.016	.02165	1.16671	.07653	-.09074	.00021	-.00107	-.00010	.89869	.74794	1.20156
4.600	41.188	.02142	1.40159	.07511	-.11404	.00041	-.00107	-.00017	1.00531	.97952	1.02633
4.600	46.387	.02155	1.62829	.06648	-.15420	.00044	-.00124	-.00032	1.07503	1.22477	.87774
	GRADIENT	.00012	.02069	-.00214	.00047	-.00000	-.00002	-.00010	.01902	-.00295	.18266

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2011) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDCLAP = 16.300  
 R/L = 2.500

RUN NO. 34/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.724	.01701	-.12468	.13927	-.02967	-.00028	.00057	.00030	-.11279	.14906	-.75667
2.500	-3.303	.01724	-.07864	.13901	-.03273	-.00030	.00047	.00035	-.07050	.14331	-.49190
2.500	-1.533	.01906	-.02361	.13857	-.03830	-.00026	.00041	-.00068	-.01989	.13916	-.14296
2.500	-.503	.02010	.00939	.13823	-.04140	-.00045	.00033	-.00118	.01061	.13814	.07679
2.500	.503	.01894	.04055	.13766	-.04497	-.00037	.00041	-.00060	.03934	.13801	.28503
2.500	1.601	.02031	.07547	.13741	-.04750	-.00048	.00023	-.00111	.07160	.13947	.51340
2.500	2.626	.02028	.10650	.13656	-.05118	-.00025	.00023	-.00109	.10013	.14129	.70869
2.500	3.680	.02054	.14091	.13574	-.05495	-.00027	.00013	-.00105	.13191	.14450	.91282
2.500	5.760	.02074	.21205	.13390	-.06078	-.00022	.00003	-.00098	.19754	.15451	1.27850
2.500	7.844	.02205	.27944	.13205	-.06573	-.00026	-.00015	-.00145	.25880	.16895	1.53183
2.500	9.952	.02114	.35249	.12993	-.07177	-.00012	-.00017	-.00083	.32473	.18889	1.71914
2.500	15.213	.02225	.54651	.12856	-.09350	.00003	-.00035	-.00117	.49362	.26746	1.84557
2.500	20.516	.02226	.76130	.12883	-.12054	.00042	-.00046	-.00092	.66786	.38747	1.72363
2.500	25.842	.02515	.99012	.12567	-.15107	.00080	-.00144	-.00051	.83633	.54469	1.53543
2.500	31.137	.02640	1.22560	.12253	-.17941	.00110	-.00194	-.00017	.98567	.73863	1.33446
2.500	36.470	.02585	1.48164	.12327	-.21329	-.00011	-.00018	-.00359	1.11822	.97982	1.14125
GRADIENT		.00044	.03149	-.00041	-.00303	-.00000	-.00005	-.00018	.02902	-.00052	.20077

RUN NO. 35/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
3.900	-4.363	.01673	-.11237	.10648	-.03411	.00017	.00052	.00131	-.10395	.11472	-.90610
3.900	-3.028	.01670	-.08826	.10425	-.03342	.00017	.00052	.00135	-.08263	.10877	-.75967
3.900	-1.270	.01743	-.04816	.10131	-.03357	.00014	.00054	.00063	-.04590	.10236	-.44843
3.900	-.260	.01740	-.02411	.09984	-.03386	.00013	.00054	.00066	-.02366	.09994	-.23673
3.900	.759	.01816	-.00010	.09934	-.03507	.00023	.00056	-.00009	-.00141	.09933	-.01424
3.900	1.784	.01814	.02132	.09833	-.03519	.00034	.00056	-.00006	.01824	.09894	.18439
3.900	2.834	.01810	.04758	.09763	-.03654	.00021	.00056	-.00002	.04270	.09987	.42753
3.900	3.841	.01807	.07122	.09659	-.03776	.00020	.00056	.00001	.06458	.10114	.63855
3.900	5.860	.01800	.12640	.09495	-.04158	.00017	.00056	.00008	.11604	.10736	1.08090
3.900	7.930	.01825	.18156	.09469	-.04538	.00014	.00041	.00013	.16676	.11883	1.40336
3.900	10.007	.01818	.24454	.09437	-.05059	.00024	.00041	.00020	.22442	.13543	1.65718
3.900	15.182	.01942	.41936	.09641	-.07030	.00026	.00015	-.00041	.37948	.20287	1.87058
3.900	20.321	.02017	.61239	.09914	-.09399	.00040	-.00028	-.00022	.53985	.30564	1.76629
3.900	25.570	.02136	.83204	.10421	-.11998	.00064	-.00055	-.00038	.70557	.45312	1.55713
3.900	30.780	.02187	1.06664	.10982	-.14875	.00053	-.00054	-.00062	.86020	.64019	1.34366
3.900	36.019	.02174	1.31631	.11663	-.17812	.00065	-.00099	.00013	.99607	.86839	1.14703
3.900	41.242	.02220	1.57383	.12089	-.20981	.00053	-.00096	-.00062	1.10373	1.12842	.97811
3.900	46.512	.02274	1.84542	.12076	-.26628	.00061	-.00094	-.00144	1.18241	1.42199	.83152
GRADIENT		.00020	.02262	-.00117	-.00046	.00001	.00001	-.00020	.02080	-.00165	.19335

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2011) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000  
 AILRON = .000 RUDDER = .000  
 SPCBRK = 54.920 BDFLAP = 16.300  
 R/L = 2.500

RUN NO. 36/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.045	.01666	-.11184	.10227	-.03223	.00007	.00066	.00177	-.10434	.10991	-.94939
4.600	-2.693	.01742	-.08446	.09067	-.03118	.00004	.00069	.00082	-.07973	.10253	-.77759
4.600	-.953	.01738	-.04703	.09499	-.03306	.00018	.00069	.00086	-.04545	.09576	-.47457
4.600	.048	.01769	-.02664	.09316	-.03409	.00016	.00051	.00087	-.02672	.09313	-.28690
4.600	1.063	.01846	-.00271	.09193	-.03407	.00029	.00054	-.00010	-.00441	.09187	-.04804
4.600	2.067	.01844	.01768	.09075	-.03505	.00028	.00054	-.00007	.01440	.09133	.15764
4.600	3.125	.01841	.04104	.08919	-.03623	.00027	.00053	-.00004	.03612	.09129	.39567
4.600	4.127	.01871	.06440	.08791	-.03744	.00026	.00036	-.00003	.05791	.09231	.62730
4.600	5.140	.01866	.11451	.08529	-.04000	.00024	.00035	.00004	.10473	.09705	1.07920
4.600	6.210	.01893	.17143	.08369	-.04293	.00036	.00017	.00009	.15772	.10731	1.46975
4.600	10.265	.01888	.23139	.08414	-.04840	.00033	.00017	.00016	.21269	.12403	1.71483
4.600	15.381	.01984	.40031	.08729	-.06806	.00039	.00002	-.00068	.36282	.19035	1.90610
4.600	20.484	.02032	.59270	.09122	-.09035	.00060	-.00035	-.00047	.52330	.29286	1.78688
4.600	25.680	.02045	.79852	.09759	-.11445	.00066	-.00055	.00025	.67736	.43399	1.56076
4.600	30.854	.02134	1.03050	.10438	-.14254	.00054	-.00071	-.00011	.83113	.61810	1.34466
4.600	36.010	.02145	1.26778	.11284	-.17418	.00072	-.00089	-.00023	.95918	.83665	1.14646
4.600	41.232	.02233	1.51508	.11637	-.20657	.00089	-.00104	-.00132	1.06272	1.08611	.97846
4.600	46.381	.02251	1.75703	.11544	-.26794	.00105	-.00121	-.00152	1.12854	1.35162	.83495
	GRADIENT	.00024	.02155	-.00170	-.00069	.00003	-.00003	-.00022	.01986	-.00211	.19605

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TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 =140A/B ORBITER

(RQ2012) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2693.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BCFLAP = -11.700  
 R/L = 2.500

RUN NO. 37/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.800	.01760	-.29743	.17769	.08331	-.00085	.00059	-.00011	-.28151	.20195	-1.39395
2.500	-3.428	.01865	-.24959	.17233	.07792	-.00064	.00050	-.00061	-.23884	.18695	-1.27760
2.500	-1.633	.01920	-.18712	.16691	.07243	-.00043	.00031	-.00056	-.18229	.17218	-1.05871
2.500	-.593	.01992	-.14888	.16302	.06637	-.00062	.00033	-.00106	-.14719	.16455	-.89451
2.500	.422	.01990	-.11584	.15915	.06184	-.00031	.00032	-.00103	-.11701	.15829	-.73923
2.500	1.485	.02095	-.08123	.15568	.05666	-.00042	.00024	-.00154	-.08524	.15352	-.55523
2.500	2.618	.02153	-.04120	.14971	.05170	-.00044	.00005	-.00152	-.04800	.14767	-.32501
2.500	3.597	.02228	-.01004	.14598	.04989	-.00022	.00006	-.00203	-.01918	.14506	-.13222
2.500	5.665	.02137	.05753	.14003	.04542	-.00007	.00004	-.00141	.04343	.14503	.29946
2.500	7.778	.02126	.12190	.13541	.04584	.00023	.00004	-.00132	.10245	.15066	.68000
2.500	9.884	.02217	.19296	.13132	.04579	-.00022	-.00004	-.00174	.16755	.16249	1.03117
2.500	15.125	.02262	.37646	.11797	.03636	.00003	-.00004	-.00206	.33263	.21212	1.56816
2.500	20.436	.02257	.56789	.10525	.02988	.00028	-.00014	-.00175	.49539	.29692	1.66845
2.500	25.749	.02509	.77024	.09244	.02491	.00068	-.00103	-.00130	.65361	.41787	1.56412
2.500	31.013	.02738	.97375	.08306	.02463	.00084	-.00161	-.00146	.79176	.57290	1.38201
2.500	36.366	.02532	1.18988	.07182	.02143	-.00065	-.00019	-.00323	.91556	.76336	1.19938
GRADIENT		.00052	.03429	-.00373	-.00418	.00006	-.00006	-.00021	.03133	-.00671	.15190

RUN NO. 38/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
3.900	-4.413	.01717	-.20961	.13308	.02357	.00038	.00068	.00058	-.19875	.14881	-1.33558
3.900	-3.071	.01823	-.17749	.12862	.02374	.00023	.00056	-.00016	-.17034	.13795	-1.23483
3.900	-1.312	.01817	-.13735	.12359	.02447	.00022	.00056	-.00010	-.13448	.12670	-1.06145
3.900	-.280	.01815	-.11332	.11930	.02313	.00033	.00056	-.00007	-.11274	.11985	-.94068
3.900	.734	.01810	-.08674	.11616	.02172	.00019	.00056	-.00003	-.08822	.11504	-.76688
3.900	1.763	.01807	-.06265	.11357	.02235	.00018	.00056	.00001	-.06611	.11159	-.59249
3.900	2.803	.01882	-.03894	.11080	.02202	.00016	.00058	-.00073	-.04431	.10877	-.40736
3.900	3.795	.01880	-.01522	.10878	.02171	.00027	.00058	-.00071	-.02238	.10753	-.20816
3.900	5.848	.01872	.03752	.10343	.02172	.00025	.00058	-.00063	.02679	.10672	.25100
3.900	7.892	.01896	.08767	.10078	.02288	.00023	.00043	-.00056	.07301	.11187	.65261
3.900	9.960	.01919	.14566	.09749	.02262	.00021	.00029	-.00049	.12660	.12121	1.04443
3.900	15.131	.02007	.29791	.09015	.02389	.00025	.00017	-.00106	.26405	.16478	1.60240
3.900	20.320	.02125	.46829	.08170	.02304	.00029	-.00009	-.00158	.41078	.23924	1.71703
3.900	25.519	.02128	.65113	.07739	.02753	.00047	-.00026	-.00092	.55427	.35035	1.58204
3.900	30.748	.02206	.85252	.07252	.02877	.00039	-.00039	-.00111	.69561	.49818	1.39630
3.900	35.958	.02315	1.06354	.06798	.03165	.00041	-.00065	-.00186	.82097	.67953	1.20815
3.900	41.185	.02309	1.28527	.06195	.03226	.00021	-.00079	-.00180	.92648	.89297	1.03753
3.900	46.454	.02278	1.49785	.05137	.02552	.00036	-.00079	-.00179	.99468	1.12107	.88727
GRADIENT		.00015	.02372	-.00302	-.00029	-.00001	-.00001	-.00012	.02153	-.00509	.13811

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2012) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = -11.700  
 R/L = 2.500

RUN NO. 40/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.073	.01822	-.20421	.13175	.02002	.00012	.00072	-.00019	-.19434	.14593	-1.33176
4.600	-2.717	.01817	-.17338	.12609	.02083	-.00004	.00072	-.00013	-.16721	.13416	-1.24631
4.600	-.975	.01846	-.13241	.11694	.01855	.00009	.00054	-.00010	-.13040	.11917	-1.09425
4.600	.016	.01812	-.10518	.11371	.01592	.00023	.00072	-.00006	-.10521	.11368	-.92552
4.600	1.036	.01842	-.08462	.10977	.01604	.00022	.00054	-.00005	-.08660	.10822	-.80019
4.600	2.058	.01807	-.06075	.10643	.01483	.00021	.00071	.00000	-.06454	.10418	-.61945
4.600	3.069	.01836	-.03723	.10380	.01480	.00005	.00054	.00003	-.04274	.10166	-.42042
4.600	4.080	.01913	-.01369	.10046	.01477	.00002	.00056	-.00004	-.02080	.09924	-.20965
4.600	5.117	.01908	.03336	.09290	.01464	.00016	.00056	-.00007	.02327	.09593	.24255
4.600	6.168	.01966	.08405	.08901	.01686	.00013	.00020	-.00003	.07055	.10004	.70519
4.600	10.220	.01960	.13786	.08556	.01648	.00026	.00020	-.00076	.12049	.10866	1.10885
4.600	15.357	.02053	.28843	.07915	.01825	.00019	.00005	-.00154	.25717	.15271	1.68405
4.600	20.488	.02064	.45267	.07363	.02284	.00028	-.00014	-.00127	.39827	.22741	1.75133
4.600	25.663	.02185	.63056	.07077	.02556	.00036	-.00049	-.00152	.53771	.33687	1.59621
4.600	30.784	.02159	.82150	.06790	.02996	.00014	-.00051	-.00081	.67100	.47878	1.40149
4.600	35.999	.02244	1.02960	.06539	.02987	.00035	-.00066	-.00187	.79455	.65807	1.20740
4.600	41.153	.02283	1.23737	.05928	.02874	.00041	-.00102	-.00195	.89267	.85892	1.03930
4.600	46.298	.02264	1.43335	.04652	.00832	.00062	-.00102	-.00206	.95669	1.06837	.89547
GRADIENT		.00006	.02342	-.00385	-.00082	.00000	-.00002	-.00004	.02136	-.00574	.13843

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -14DA/B ORBITER

(R02013) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BCFLAP = -11.700  
 R/L = 5.000

RUN NO. 39/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.219	.01651	-.20720	.13373	.02144	.00013	.00090	-.00018	-.19680	.14862	-1.32422
4.600	-2.860	.01708	-.17641	.12846	.02149	.00019	.00072	-.00015	-.16978	.13710	-1.23837
4.600	-1.078	.01763	-.13389	.11962	.01899	.00009	.00054	-.00011	-.13161	.12211	-1.07778
4.600	-.069	.01758	-.10826	.11546	.01752	.00015	.00054	-.00008	-.10812	.11559	-.93535
4.600	.979	.01785	-.08440	.11133	.01676	.00014	.00045	-.00005	-.08629	.10987	-.78538
4.600	2.007	.01827	-.05881	.10824	.01596	.00020	.00055	-.00051	-.06257	.10612	-.58961
4.600	3.086	.01821	-.03507	.10504	.01645	.00019	.00055	-.00047	-.04067	.10300	-.39488
4.600	4.110	.01815	-.00968	.10127	.01622	.00018	.00055	-.00043	-.01692	.10032	-.16865
4.600	6.176	.01914	.04118	.09609	.01703	.00015	.00047	-.00086	.03060	.09996	.30616
4.600	8.259	.01934	.09206	.09222	.01788	.00021	.00038	-.00080	.07786	.10449	.74514
4.600	10.359	.02065	.14794	.08866	.01841	.00026	.00021	-.00123	.12958	.11381	1.13857
4.600	15.592	.02094	.29482	.08068	.02001	.00027	.00003	-.00103	.26228	.15695	1.67109
4.600	20.884	.02273	.46382	.07444	.02460	.00020	-.00013	-.00173	.40681	.23489	1.73191
4.600	26.224	.02321	.65184	.07155	.03010	.00029	-.00041	-.00120	.55313	.35222	1.57040
4.600	31.526	.02460	.85419	.06804	.03165	.00020	-.00049	-.00174	.69253	.50464	1.37232
4.600	36.911	.02541	1.06623	.06470	.03098	.00050	-.00085	-.00166	.81367	.69209	1.17566
4.600	42.268	.02602	1.28174	.05880	.03010	.00064	-.00093	-.00203	.90894	.90561	1.00367
	GRADIENT	.00020	.02378	-.00392	-.00074	.00001	-.00004	-.00004	.02168	-.00583	.13921

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2014) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690,0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = -11.700  
 R/L = 1.250

RUN NO. 41/ 0 RN/L = 1.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.983	.01875	-.20361	.13120	.01644	-.00019	.00074	-.00018	-.19401	.14502	-1.33777
4.600	-2.662	.01906	-.17522	.12546	.01764	-.00021	.00037	-.00017	-.16921	.13346	-1.26780
4.600	-.921	.01936	-.13325	.11513	.01308	-.00024	.00001	-.00016	-.13138	.11725	-1.12047
4.600	.038	.01935	-.10518	.11184	.01179	-.00025	.00001	-.00012	-.10526	.11177	-.94171
4.600	1.080	.01902	-.08410	.10767	.01095	-.00026	.00037	-.00006	-.08612	.10607	-.81191
4.600	2.076	.01933	-.06292	.10536	.01000	.00004	.00000	-.00008	-.06670	.10301	-.64747
4.600	3.109	.01931	-.04263	.10123	.01161	-.00028	.00000	-.00003	-.04806	.09877	-.48659
4.600	4.096	.01930	-.01514	.09890	.01280	.00003	.00000	.00000	-.02216	.09757	-.22717
4.600	6.090	.01928	.03244	.09114	.01305	.00001	.00000	.00007	.02259	.09407	.24014
4.600	8.144	.01925	.07998	.08699	.01344	-.00001	.00000	.00014	.06686	.09744	.68609
4.600	10.139	.02002	.13481	.08346	.01590	.00025	.00005	-.00184	.11801	.10589	1.11452
4.600	15.246	.01993	.26837	.07645	.01702	.00020	.00005	-.00164	.23882	.14433	1.65467
4.600	20.278	.02015	.43746	.07034	.02108	.00045	-.00033	-.00139	.38597	.21760	1.77376
4.600	25.349	.02035	.62043	.06857	.02455	.00039	-.00074	-.00010	.53134	.32760	1.62192
4.600	30.435	.02023	.81668	.06557	.02714	.00065	-.00077	.00111	.67093	.47023	1.42680
4.600	35.560	.02087	1.01597	.06461	.02774	.00022	-.00070	-.00132	.78893	.64341	1.22617
4.600	40.631	.02106	1.22303	.05851	.02772	.00044	-.00106	-.00174	.89008	.84083	1.05858
4.600	45.737	.02239	1.42007	.04449	.00523	.00061	-.00172	-.00435	.95928	1.04802	.91533
	GRADIENT	.00005	.02323	-.00404	-.00073	.00002	-.00007	.00002	.02120	-.00594	.13630



OA20C LRC UFWT 1057 -140A/B ORBITER

(RQ2015) ( 10 APR 74 )

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BCFLAP = -11.700  
 R/L = 2.500

RUN NO. 42/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.743	.01723	-.18038	.13098	.01466	-.00030	.00047	.00036	-.16893	.14544	-1.16152
2.500	-3.360	.01745	-.13630	.12981	.01167	-.00057	.00038	.00041	-.12846	.13757	-.93378
2.500	-1.534	.02004	-.07935	.12795	.00861	-.00054	.00033	-.00114	-.07590	.13002	-.58375
2.500	-.542	.01921	-.04805	.12649	.00626	-.00038	.00031	-.00057	-.04685	.12694	-.36906
2.500	.537	.02026	-.01493	.12517	.00381	-.00040	.00023	-.00108	-.01610	.12502	-.12877
2.500	1.600	.02022	.01638	.12412	.00148	-.00025	.00023	-.00104	.01290	.12453	.10363
2.500	2.659	.02048	.04743	.12292	-.00087	-.00027	.00013	-.00101	.04168	.12499	.33343
2.500	3.633	.01997	.07495	.12123	-.00240	-.00011	.00001	-.00046	.06711	.12574	.53377
2.500	5.708	.02094	.13894	.11718	-.00393	-.00031	-.00007	-.00090	.12659	.13042	.97066
2.500	7.853	.02113	.20872	.11274	-.00516	-.00009	-.00017	-.00083	.19136	.14020	1.36497
2.500	9.942	.02177	.27602	.10873	-.00693	-.00021	-.00015	-.00126	.25311	.15475	1.63556
2.500	15.217	.02176	.45451	.10187	-.01611	.00004	-.00026	-.00105	.41184	.21760	1.89268
2.500	20.489	.02347	.65145	.09451	-.02650	.00020	-.00064	-.00133	.57716	.31656	1.82319
2.500	25.809	.02457	.85692	.08338	-.03813	.00052	-.00135	-.00032	.73514	.44814	1.64044
2.500	31.085	.02624	1.07084	.07127	-.04902	.00067	-.00173	-.00049	.88027	.61391	1.43388
2.500	36.455	.02599	1.30161	.06316	-.06272	-.00053	-.00007	-.00389	1.00938	.82421	1.22466
GRADIENT		.00038	.03055	-.00116	-.00207	.00003	-.00005	-.00015	.02827	-.00232	.20589

RUN NO. 43/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
3.900	-4.373	.01671	-.14040	.10243	-.01552	.00008	.00052	.00134	-.13218	.11284	-1.17145
3.900	-3.013	.01666	-.11350	.10016	-.01308	.00007	.00052	.00139	-.10808	.10599	-1.01971
3.900	-1.287	.01740	-.07864	.09633	-.01202	.00005	.00054	.00066	-.07646	.09807	-.77962
3.900	-.272	.01736	-.05720	.09434	-.01122	.00004	.00054	.00070	-.05675	.09461	-.59980
3.900	.754	.01734	-.03579	.09228	-.01139	.00015	.00054	.00072	-.03700	.09180	-.40302
3.900	1.790	.01730	-.01427	.09077	-.00962	.00015	.00054	.00076	-.01709	.09028	-.18935
3.900	2.796	.01759	.00687	.08928	-.00883	.00014	.00040	.00078	.00250	.08951	.02796
3.900	3.821	.01834	.03064	.08819	-.00816	.00012	.00042	.00004	.02470	.09004	.27428
3.900	5.862	.01827	.07819	.08453	-.00686	.00010	.00042	.00011	.06914	.09208	.75095
3.900	7.925	.01819	.13099	.08232	-.00675	.00008	.00041	.00019	.11839	.09959	1.18878
3.900	9.979	.01844	.18373	.08016	-.00670	.00017	.00027	.00025	.16706	.11078	1.50798
3.900	15.150	.01932	.33837	.07587	-.00926	.00010	.00015	-.00032	.30678	.16166	1.89765
3.900	20.317	.02005	.51142	.07114	-.01397	.00026	-.00028	-.00009	.45490	.24429	1.86215
3.900	25.573	.02087	.70340	.06840	-.01766	.00030	-.00042	-.00021	.60497	.36533	1.65594
3.900	30.758	.02169	.91572	.06407	-.02648	.00044	-.00055	-.00044	.75415	.52336	1.44096
3.900	36.016	.02199	1.14218	.06176	-.03672	.00034	-.00083	-.00043	.88754	.72157	1.23001
3.900	41.237	.02242	1.38032	.05698	-.04949	.00011	-.00081	-.00114	1.00042	.95272	1.05006
3.900	46.480	.02277	1.61388	.04824	-.07176	.00024	-.00109	-.00117	1.07635	1.20350	.89434
GRADIENT		.00016	.02080	-.00180	.00083	.00001	-.00001	-.00013	.01909	-.00286	.17730

OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2015) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPCBRK = 54.920 BDFLAP = -11.700  
 R/L = 2.500

RUN NO. 44/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.047	.01776	-.13521	.09977	-.01900	.00007	.00051	.00077	-.12783	.10906	-1.17210
4.600	-2.709	.01740	-.11110	.09562	-.01652	-.00009	.00069	.00084	-.10646	.10076	-1.05653
4.600	-.953	.01768	-.07335	.09056	-.01605	.00005	.00051	.00087	-.07183	.09177	-.78275
4.600	.024	.01766	-.05620	.08821	-.01567	.00004	.00051	.00090	-.05624	.08819	-.63772
4.600	1.037	.01764	-.03555	.08638	-.01424	.00003	.00051	.00093	-.03711	.08572	-.43292
4.600	2.066	.01761	-.01491	.08447	-.01282	.00003	.00051	.00097	-.01794	.08387	-.21390
4.600	3.106	.01839	.00525	.08303	-.01260	.00000	.00054	.00000	.00074	.08319	.00890
4.600	4.092	.01867	.02547	.08057	-.01124	-.00001	.00036	.00002	.01966	.08218	.23923
4.600	6.130	.01862	.07267	.07657	-.01002	.00013	.00035	.00008	.06408	.08389	.76379
4.600	8.169	.01888	.11991	.07329	-.00759	.00011	.00017	.00014	.10828	.08959	1.20865
4.600	10.240	.01882	.17366	.07112	-.00791	.00009	.00017	.00022	.15825	.10086	1.56896
4.600	15.342	.01977	.32066	.06818	-.00950	.00017	.00002	-.00059	.29119	.15060	1.93359
4.600	20.491	.01989	.48794	.06447	-.00990	.00025	-.00017	-.00033	.43450	.23120	1.87930
4.600	25.688	.02111	.67217	.06337	-.01359	.00032	-.00052	-.00059	.57827	.34847	1.65943
4.600	30.837	.02119	.87939	.06078	-.01991	.00024	-.00072	.00008	.72392	.50296	1.43932
4.600	35.983	.02125	1.10178	.05966	-.03398	.00014	-.00090	.00001	.85649	.69562	1.23126
4.600	41.178	.02213	1.32754	.05431	-.04843	.00033	-.00105	-.00107	.96345	.91493	1.05303
4.600	46.360	.02115	1.54475	.04309	-.08572	.00038	-.00107	-.00021	1.03490	1.14765	.90175
	GRADIENT	.00011	.01980	-.00229	.00088	-.00000	-.00002	-.00009	.01819	-.00324	.17612

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TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2016) ( 10 APR 74 )

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LPEF = 476.8117 IN. YMRP = .0000 IN.  
 BPEF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDFLAP = .000  
 R/L = 2.500

RUN NO. 45/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.714	.01612	-.18071	.13124	.01209	-.00046	.00056	.00090	-.16931	.14565	-1.16250
2.500	-3.371	.01748	-.13837	.12998	.01045	-.00032	.00038	.00040	-.13049	.13789	-.94630
2.500	-1.543	.01737	-.08314	.12813	.00620	-.00043	.00037	.00047	-.07966	.13032	-.61127
2.500	-.527	.01844	-.05007	.12732	.00310	-.00029	.00029	-.00005	-.04889	.12777	-.38265
2.500	.416	.01839	-.02061	.12539	.00149	-.00022	.00029	-.00001	-.02152	.12523	-.17185
2.500	1.585	.02055	.01426	.12437	-.00170	-.00034	.00013	-.00106	.01082	.12472	.08674
2.500	2.616	.02004	.04343	.12317	-.00462	-.00018	.00002	-.00051	.03776	.12502	.30204
2.500	3.620	.01998	.07441	.12183	-.00563	-.00019	.00001	-.00046	.06657	.12628	.52715
2.500	5.701	.02098	.13856	.11769	-.00852	-.00007	-.00007	-.00093	.12618	.13087	.96417
2.500	7.866	.02114	.20426	.11349	-.01014	-.00034	-.00017	-.00083	.18681	.14038	1.33077
2.500	9.916	.02024	.27005	.10936	-.01251	-.00011	-.00019	-.00022	.24719	.15423	1.60274
2.500	15.151	.02148	.44859	.10261	-.02233	.00004	-.00016	-.00107	.40618	.21629	1.87795
2.500	20.469	.02242	.64508	.09612	-.03465	.00028	-.00056	-.00082	.57074	.31564	1.80820
2.500	25.839	.02462	.85702	.08510	-.04863	.00060	-.00135	-.00036	.73425	.45013	1.63120
2.500	31.039	.02551	1.07339	.07306	-.06228	.00075	-.00175	-.00001	.88203	.61607	1.43170
2.500	36.491	.02524	1.30909	.06522	-.07823	-.00062	-.00009	-.00338	1.01366	.83094	1.21989
GRADIENT		.00050	.03061	-.00114	-.00227	.00003	-.00006	-.00019	.02832	-.00233	.20565

RUN NO. 46/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
3.900	-4.401	.01671	-.14060	.10472	-.01642	.00008	.00052	.00134	-.13215	.11520	-1.14715
3.900	-3.049	.01667	-.11373	.10191	-.01494	.00007	.00052	.00138	-.10815	.10782	-1.00305
3.900	-1.260	.01773	-.07888	.09787	-.01391	.00005	.00040	.00064	-.07671	.09958	-.77033
3.900	-.281	.01769	-.05737	.09597	-.01310	.00004	.00040	.00068	-.05690	.09625	-.59120
3.900	.737	.01766	-.03588	.09396	-.01231	.00015	.00040	.00071	-.03758	.09349	-.39665
3.900	1.779	.01763	-.01440	.09284	-.01147	.00014	.00040	.00074	-.01728	.09235	-.18710
3.900	2.786	.01760	.00672	.09185	-.01064	.00013	.00040	.00077	.00225	.09206	.02446
3.900	3.819	.01835	.03049	.08971	-.01000	.00011	.00042	.00003	.02445	.09154	.26711
3.900	5.879	.01828	.08058	.08642	-.00978	.00010	.00042	.00011	.07131	.09422	.75677
3.900	7.988	.01820	.13345	.08405	-.00874	.00019	.00041	.00018	.12047	.10178	1.18371
3.900	9.979	.01877	.18611	.08215	-.00965	.00017	.00013	.00023	.16906	.11316	1.49409
3.900	15.148	.01934	.34072	.07784	-.01315	.00021	.00015	-.00034	.30854	.16418	1.87933
3.900	20.296	.02007	.51631	.07313	-.01990	.00037	-.00028	-.00011	.45889	.24768	1.85274
3.900	25.551	.02090	.71077	.06981	-.02566	.00041	-.00042	-.00023	.61115	.36954	1.65381
3.900	30.747	.02171	.92511	.06640	-.03646	.00043	-.00055	-.00046	.76113	.53003	1.43601
3.900	36.030	.02201	1.15747	.06399	-.04988	.00033	-.00083	-.00045	.89842	.73258	1.22638
3.900	41.191	.02277	1.39477	.05932	-.06547	.00009	-.00094	-.00119	1.01052	.96319	1.04915
3.900	46.501	.02345	1.63118	.04978	-.09179	.00021	-.00136	-.00124	1.08669	1.21751	.89256
GRADIENT		.00017	.02076	-.00180	.00077	.00001	-.00001	-.00013	.01901	-.00287	.17325

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TABULATED SOURCE DATA - OA20C

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OA20C LRC UFWT 1057 -140A/B ORBITER

(R02016) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 DDFLAP = .000  
 R/L = 2.500

RUN NO. 47/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.058	.01666	-.13848	.10155	-.02110	.00009	.00066	.00177	-.13095	.11109	-1.17870
4.600	-2.732	.01741	-.11097	.09745	-.01886	.00006	.00069	.00082	-.10620	.10262	-1.03486
4.600	-.980	.01769	-.07676	.09245	-.01818	.00005	.00051	.00086	-.07517	.09375	-.80181
4.600	.015	.01767	-.05625	.09000	-.01799	.00004	.00051	.00089	-.05627	.08998	-.62535
4.600	1.051	.01764	-.03556	.08809	-.01536	.00003	.00051	.00093	-.03717	.08742	-.42518
4.600	2.041	.01842	-.01499	.08633	-.01517	.00016	.00054	-.00004	-.01806	.08574	-.21061
4.600	3.097	.01838	.00515	.08419	-.01374	.00000	.00054	.00000	.00059	.08435	.00702
4.600	4.073	.01837	.02528	.08241	-.01356	.00015	.00053	.00002	.01937	.08400	.23054
4.600	6.103	.01863	.07242	.07852	-.01115	.00013	.00035	.00008	.06366	.08577	.74219
4.600	8.176	.01889	.11944	.07503	-.00993	.00011	.00017	.00014	.10756	.09126	1.17865
4.600	10.248	.01883	.17306	.07287	-.01026	.00009	.00017	.00021	.15733	.10249	1.53509
4.600	15.323	.01977	.32305	.07002	-.01324	.00016	.00002	-.00060	.29306	.15290	1.91672
4.600	20.461	.01990	.49320	.06628	-.01625	.00024	-.00017	-.00034	.43891	.23450	1.87169
4.600	25.646	.02112	.68032	.06519	-.02132	.00031	-.00052	-.00060	.58508	.35322	1.65644
4.600	30.746	.02121	.88366	.06273	-.02983	.00023	-.00072	.00006	.72739	.50567	1.43848
4.600	35.961	.02128	1.11197	.06124	-.04673	.00027	-.00089	-.00002	.86408	.70256	1.22990
4.600	41.158	.02214	1.34377	.05718	-.06389	.00030	-.00104	-.00108	.97409	.92743	1.05031
4.600	46.300	.02260	1.56754	.04617	-.10031	.00049	-.00140	-.00125	1.04961	1.16517	.90082
	GRADIENT	.00020	.02010	-.00232	.00093	.00000	-.00002	-.00020	.01846	-.00329	.17525

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UFWT 1057 -140A/B ORBITER

(RQ2017) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPOBRK = 54.920 BDFLAP = .000  
 R/L = 5.000

RUN NO. 48/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-4.206	.01449	-.13819	.10076	-.02051	.00008	.00076	.00128	-.13043	.11062	-1.17907
4.600	-2.840	.01474	-.11252	.09725	-.01889	-.00001	.00067	.00132	-.10756	.10271	-1.04728
4.600	-1.040	.01544	-.07499	.09264	-.01793	-.00003	.00069	.00088	-.07330	.09399	-.77986
4.600	.003	.01540	-.05442	.09027	-.01724	.00012	.00069	.00091	-.05442	.09027	-.60294
4.600	.968	.01567	-.03559	.08811	-.01645	.00011	.00060	.00093	-.03708	.08750	-.42372
4.600	1.999	.01641	-.01501	.08614	-.01513	.00009	.00061	.00047	-.01801	.08556	-.21048
4.600	3.102	.01667	.00875	.08425	-.01400	.00008	.00052	.00050	.00418	.08460	.04938
4.600	4.172	.01661	.03079	.08246	-.01277	.00008	.00052	.00053	.02471	.08448	.29252
4.600	6.191	.01761	.07664	.07887	-.01104	.00013	.00044	.00010	.06769	.08668	.78096
4.600	8.301	.01860	.12749	.07597	-.01016	.00010	.00037	-.00033	.11518	.09357	1.23092
4.600	10.354	.01880	.18303	.07377	-.01016	.00015	.00027	-.00026	.16679	.10546	1.58156
4.600	15.629	.01989	.32935	.06968	-.01207	.00016	.00010	-.00056	.29840	.15583	1.91484
4.600	20.889	.02125	.50268	.06541	-.01439	.00016	-.00016	-.00080	.44631	.24034	1.85699
4.600	26.172	.02255	.69977	.06410	-.02030	.00015	-.00042	-.00079	.59975	.36617	1.63789
4.600	31.476	.02364	.91613	.06169	-.03165	-.00002	-.00041	-.00133	.74912	.53096	1.41087
4.600	36.902	.02403	1.14955	.05972	-.04871	.00041	-.00087	-.00080	.88339	.73800	1.19702
4.600	42.299	.02356	1.38718	.05482	-.06906	.00054	-.00088	-.00069	.98913	.97412	1.01541
	GRADIENT	.00028	.02019	-.00220	.00088	.00001	-.00003	-.00011	.01855	-.00315	.17757

DATE 11 APR 74

TABULATED SOURCE DATA - OA20C

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OA20C LRC UPWT 1057 -140A/B ORBITER

(RQ2018) ( 10 APR 74 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.  
 LREF = 476.8117 IN. YMRP = .0000 IN.  
 BREF = 936.6816 IN. ZMRP = 375.0000 IN.  
 SCALE = 1.0000 SCALE

## PARAMETRIC DATA

BETA = .000 ELEVTR = .000  
 AILRON = .000 RUDDER = .000  
 SPDBRK = 54.920 BDCLAP = .000  
 R/L = 1.250

RUN NO. 49/ 0 RN/L = 1.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.958	.01829	-.13616	.10035	-.02351	-.00024	.00032	.00181	-.12891	.10951	-1.17716
4.600	-2.666	.01828	-.11483	.09639	-.02180	-.00024	.00031	.00185	-.11022	.10162	-1.08463
4.600	-.921	.01826	-.07963	.09164	-.02322	-.00026	.00031	.00190	-.07815	.09290	-.84114
4.600	.037	.01825	-.05826	.08843	-.02165	.00005	.00031	.00192	-.05832	.08839	-.65977
4.600	1.032	.01824	-.03699	.08623	-.02001	.00004	.00031	.00195	-.03854	.08555	-.45047
4.600	2.076	.01855	-.01572	.08493	-.01838	.00003	-.00006	.00195	-.01879	.08430	-.22284
4.600	3.109	.01821	.00459	.08355	-.01662	-.00029	.00031	.00204	.00005	.08367	.00062
4.600	4.058	.01820	.01800	.08309	-.01457	-.00029	.00031	.00207	.01208	.08415	.14350
4.600	6.146	.01818	.06579	.07720	-.01175	.00001	.00030	.00213	.05715	.08380	.68193
4.600	8.139	.01815	.11337	.07368	-.01136	-.00001	.00030	.00220	.10180	.08698	1.14403
4.600	10.122	.01844	.16101	.07029	-.01104	-.00004	-.00007	.00223	.14616	.09750	1.49909
4.600	15.220	.01916	.30860	.06739	-.01309	.00019	-.00001	.00038	.28009	.14604	1.91784
4.600	20.271	.01937	.47744	.06377	-.01394	.00012	-.00039	.00062	.42578	.22523	1.89042
4.600	25.396	.01926	.67361	.06388	-.02118	.00037	-.00043	.00193	.58111	.34660	1.67662
4.600	30.439	.01947	.88324	.06090	-.03192	.00060	-.00083	.00307	.73065	.49997	1.46140
4.600	35.518	.02013	1.09544	.06123	-.04702	.00015	-.00076	.00062	.85605	.68624	1.24744
4.600	40.650	.02032	1.32858	.05548	-.06365	.00035	-.00111	.00017	.97186	.90757	1.07083
4.600	45.666	.02054	1.54779	.04466	-.09962	.00053	-.00147	-.00035	1.04972	1.13831	.92218
GRADIENT		-.00000	.01989	-.00222	.00106	.00001	-.00001	.00003	.01827	-.00322	.17430

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